# Railway Maintenance Engineer

Vol. 16 August, 1920 Number 8

(With which is incorporated the Engineering and Maintenance of Way Edition of the *Railway Age Gazette* and *Railway Engineering and Maintenance of Way.*)

Published on the last Thursday preceding the date of issue by the
SIMMONS-BOARDMAN PUBLISHING CO.,
TRANSPORTATION BUILDING, CHICAGO, ILL.

NEW YORK: WOOLWORTH BLDG. CLEVELAND: CITIZENS' BLDG.
WASHINGTON: HOME LIFE BLDG. CINCINNATI: 1ST NATIONAL BANK BLDG.
LONDON: 34 VICTORIA ST., WESTMINSTER, S. W. 1.
CABLE ADDRESS—URASIGMEC.

EDWARD A. SIMMONS, *President.*
LUCIUS B. SHERMAN, *Vice-President.* SAMUEL O. DUNN, *Vice-President.*
HENRY LEE, *Vice-President and Treas.* C. R. MILLS, *Vice-President.*
ROY V. WRIGHT, *Secretary.* BEN J. WILSON, *Business Manager.*

ELMER T. HOWSON, *Editor.*
WALTER S. LACHER, *Managing Editor.* H. F. LANE (*Washington, D. C.*)
MILBURN MOORE, *Associate Editor.* ROBERT L. THAYER (*London, Eng.*)

Entered at the Post Office at Chicago, Ill., as mail matter of the second class.

Subscription price, $2.00; foreign countries, $2.50. £-12s-6d. Single copies, 20 cents. Foreign subscriptions may be paid through our London office (34 Victoria Street, S. W. 1) in £-s-d.

WE GUARANTEE, that of this issue 7,400 copies were printed; that of these 7,400 copies 6,906 were mailed to regular paid subscribers, 67 were mailed to advertisers, 25 were mailed to employees and correspondents and 402 were provided for new subscriptions, samples, copies lost in the mail and office use; that the total copies printed this year to date were 64,050 an average of 8,006 copies a week.

*The Railway Maintenance Engineer* is a member of the Associated Business Papers (A. B. P.) and of the Audit Bureau of Circulations (A. B. C.)

22


## CONTENTS


EDITORIALS ..... 291
LETTERS TO THE EDITOR ..... 293
EMPLOYEES RECEIVE LARGE WAGE ADVANCES ..... 294
FOREST PRODUCTS LABORATORY PROPOSES STUDY OF THE PROTECTION OF PILING FROM MARINE BORERS ..... 296
HOW THE ROCK ISLAND REDUCES THE USE OF BUNK CARS ..... 296
PRICELESS PROPERTY; CHAS. H. SMITH ..... 297
RAILROADING IN ALASKA NOT AN EASY TASK ..... 299
DISTRIBUTING TIES FOR SERVICE DEMANDED ..... 300
RENEWING A TRESTLE UNDER HEAVY TRAFFIC ..... 301
A FLAT-BASE SWITCH POINT ..... 304
COMFORTABLE HOUSES FOR SECTION MEN ..... 304
WHAT HAVE I GAINED FROM CONVENTIONS? ..... 305
THE PASSING OF THE HOBO ..... 307
PLACING RIGHT-OF-WAY MONUMENTS; F. D. YEATON ..... 308
HOW CAN WE INCREASE EFFICIENCY? ..... 309
AN UNUSUAL CASE OF SETTLEMENT ..... 313
A SHORT CUT IN ESTIMATING TRACK MATERIALS; H. M. BOOTH, JR. ..... 314
SETTLEMENTS WITH RAILROAD ADMINISTRATION ..... 316
CUTTING MAINTENANCE COSTS ..... 320
ASSOCIATION ACTIVITIES ..... 322
THE MATERIAL MARKET ..... 323
GENERAL NEWS ..... 324


### Maintenance Costs Versus Operating Needs

One of the vexing problems of maintenance officers is the maintaining of the large number of switches, crossovers and slip switches which are found on all lines. Bolts need tightening regularly, ties must be renewed, points must be straightened or replaced, frogs must be changed out and the entire crossing must be thoroughly gone over at intervals. This is, of course, necessary and important work, but it requires material difficult to secure, and the use of labor urgently needed at other points. The problem is further complicated by the necessity of making a complete renewal whenever heavier rail is laid. This suggests the importance of considering the possibility of effecting a reduction in the number of such installations or the use of a more simple form of construction. The operating department naturally feels that it needs every crossover and slip switch that it has and a few more in addition, but the fact remains that there are large numbers of such installations which are seldom used. There are diamond crossovers over which movements are made so seldom that a simple crossover could be used as advantageously and there are other situations where the multiplicity of the installations is entirely out of proportion to the needs of the traffic. Most division engineers are aware of this fact, but they have not proceeded to correct it. The cost of maintaining switches and crossovers has increased so greatly in the last year or two that the subject has assumed added importance. A few figures on these costs of maintenance in comparison with the value of the use of these installations will now compel serious attention and careful consideration on the part of railway executives. The dividing line is obviously where the maintenance costs begin to exceed the operating needs and it should be observed.

### Revenue Transportation Comes First

The serious crisis which confronts the American railroads today is primarily concerned with the inability to meet the demands made on them for transportation service. Other large problems confront the managements in their efforts to restore the properties to a condition of proper effectiveness under the new status brought about by the Esch-Cummins law, but the one overwhelming task is to supply cars as they are requisitioned and transport them rapidly to destination. In the eyes of the shipping public, which after all will be the final judge of the success of private management, the ability of the roads to provide adequate transportation is the one thing that counts—all else is merely incidental. In the face of these facts the duty of the maintenance of way officer is plain. His work must be conducted with the minimum number of cars, the minimum demands on transportation service and a minimum of interference with the movement of revenue traffic. It is, of course, a source of cruel discouragement to be compelled to see the effectiveness and efficiency of a well organized force seriously impaired through lack of equipment or because of wasteful delays, but these grievances are no worse than those to which a great many private business undertakings are being subjected today for much the same reason. The railway officer must bear in mind that restrictions on the use of equipment with a view to its con-

centration in the coal traffic and other lines most essential to the life of the nation affect many lines of private business and industry. These are trying times and many trying efforts must be brought to bear before the difficulties will be overcome.

## SAVE THE OLD TIES

PRESENT INDICATIONS point to a shortage of coal during the coming winter that brings visions of the heatless Mondays of 1918 or the coal strike of last winter. It is true that the people of this country have been confronted with one alarming shortage of life's necessities after another without ever experiencing any real disaster, but it is safe to say that disasters have been warded off only because of the heroic measures taken to prevent them. There is, moreover, every reason to believe that such measures will be as necessary this fall and winter as they have when fuel shortages have previously threatened. Many people are, in consequence, taking the initiative by laying in stores of cordwood where this can be made to take the place of coal.

This recalls the discussions current during the previous crises as to the possibility of using old ties as fuel and, no doubt, this practice will be followed in those localities where it has been found both practicable and economical in the past. But whatever the economics of their use, the situation with which the country is confronted points to the need of conserving all fuel available, and whether or not it would appear that old ties taken from track may be readily put to practical use as fuel at the present time, they ought not to be destroyed until such time as there is reasonable assurance that they will not be needed to keep some family from freezing.

### Loyalty

In these days of large railway corporations on the one hand and of strong organizations of employees on the other hand whose relations at those points of intimate contact such as wages and working conditions are fixed by a governmental board, the tendency is for employer and employee to feel that they have little in common or of mutual responsibility. Yet this is not and cannot be true if the railways are to serve the public efficiently and to the best interests of the employer and employee. A primary reason for the ability of a small industry to compete successfully with its stronger rival lies in the greater interest which the employees of the smaller institution take in its success and the personal interest of the employer in the welfare of his subordinates. No greater boon could come to the maintenance of way department at the present time than the universal realization that the man who signs the pay check and the road whose agent he is are the friends of the man who receives the check and have much in common with him. The man who regards the railway on which he is employed as "his road" and who takes a keen interest in its welfare not only renders the most efficient service but also gets the most happiness from his work as he passes through life.

## MAKE YOUR PLANS NOW

THE RAILWAY officer, whether subordinate, divisional or system, is a busy man not easily spared from his duties. However, there is at least one time in the year when his time may be spent with greater profit to his road at another place than his own office or the lines embraced within his jurisdiction. This is on the occasion of the convention of the association devoted to the interests of his particular responsibilities.

The conventions of the maintenance of way associations held each fall are so well known to the readers of *Railway Maintenance Engineer* that it seems almost superfluous to refer to them, but with a view to giving the specific facts to those interested, we present in this issue, under the head of the "Association Activities," the present status of plans now being perfected for these meetings. On another page several members of these associations tell why they attend these conventions and what they have learned from them. Any maintenance man who has the opportunity to do so can ill afford to miss the meeting of his particular field, but because of the demands on his time it is essential that he make his plans for absenting himself from his regular duties in adequate season to insure that he can get away.

## MORE ATTENTION TO HIGHWAY CROSSINGS

WITH THE rapidly increasing frequency of travel and weight of wheel loads on the highways, the maintenance of the crosings over the tracks at grade has become a problem of no mean proportions. This condition has been further complicated by the deterioration in the quality of the plank now available for crossing construction and has already led a number of roads to adopt other materials. At few points does the public come more frequently in contact with a railway than at a crossing In spite of the evident importance of good maintenance of such crossings only a casual invistigation is needed to convince one that the reverse is most common. The contrast is becoming all the more marked with the rapid increase in the mileage of hard surfaced roads during the last few years.

In not infrequent instances the condition of the crossing and approaches is such as to invite accidents. More generally the objection is confined to its riding qualities. While a crossing is difficult to maintain in good condition, the problem arises mainly because of neglect. When so large a proportion of the people use these crossings now, it is important that they receive more attention, for a bad crossing creates an unfavorable impression of the road. The energetic foreman can promote the interests of his road through public favor in no more direct way than by maintaining the crossings under his supervision in good condition.

## EARNING THE INCREASED WAGE

FOR THE SECOND time in three years maintenance of way employees have been awarded large increases in pay. As noted on another page, the latest award, which is retroactive to May 1, gives approximately 25 per cent increase to the men in this branch of the service. This increase, which will add $160,000,000 to the pay roll of the railways, will go a long way towards placing the men in this department on a level with those in other branches of the service, living and working conditions equated. The railway managements have not opposed the increases to the maintenance employees, for no class of men stands higher in their esteem. At times when others

have deserted the service, the loyalty of the maintenance men has been unquestioned. As a result none has been more pleased to see the maintenance employees receive increased wages than their officers, for they have known that the advances were justly deserved.

Now that the men will soon realize the benefits of the increase just granted, it is to be hoped that its receipt will indicate the acceptance by the men of the implied obligation to render proportionately greater service. The recent award will do much to stimulate the return of many men to maintenance work and to fill gangs which have been only partially manned this summer. It will also make it possible in many instances to raise the efficiency of the gangs by enabling the foremen to replace the drones with more active men. Even more important, it will put new life into many of the foremen, for, aside from the increases which they themselves will receive, they will now be able to accomplish more with fuller gangs of more efficient men.

## AN IMPORTANT FACTOR IN LABOR PROBLEMS

THE FACT THAT the railroads are losing large numbers of high grade men who are going to better paid occupations is too well known to need further comment. To meet this migration we have devoted no little space to pointing out the imperative need of adopting labor-saving devices, of educating the men to their use, of better housing, of better supervision, etc. Where these recommendations have been adopted the effort has been well repaid.

The problem of keeping men sufficiently interested and more or less contented is not by any means confined to the railroads. It can be found in almost any business during the present day. Yet in the majority of instances, especially where not influenced by ultra-radical leaders, but even in some of those cases the men continue to work at their same positions. In almost every instance it will be found that there is another motive which compels them to stay. Sometimes it is loyalty to the organization or to their immediate superior, in other cases it is the agreeable conditions under which they work, the chances for promotion or any one of a dozen other reasons. Few of these conditions or reasons can be found on most railroads, yet they can be largely attained.

There is no sound reason why some degree of loyalty to organization or superior or almost any of the other motives cannot be instilled in the greater part of the employees, no matter what their position may be. It is a matter of study, more study and application. The keynote is personal contact in the true and full sense of the word. It is the duty of every supervisor or roadmaster to know the men in his regular forces and to know them thoroughly. Not only should he know his men by their last names, but he should know their first names and no small amount about their personal habits, likes and dislikes. It is by no means an impossible task and when once cultivated becomes easier and easier. Needless to say this can only be acquired by spending considerable time with the forces out on the line, but such time is far from wasted and generally shows results in a remarkably short period. Through his contact with the men he is broadened and enabled to eliminate superfluous details and misunderstandings and through the generated interest of his men he is able to plan more accurately, with the result that better work is performed with less hardship to the men under him. Closer supervision plus intimate first-hand knowledge of the individuals comprising his regular forces will go far toward a solution of the labor problem. The day of the "Hey! You!" class of officers is passing rapidly.

# LETTERS TO THE EDITOR

## A FOREMAN'S VIEW OF THE LABOR PROBLEM

Cushing, Okla.

TO THE EDITOR:

I have read much concerning the inefficiency among maintenance workmen, both laborers and foremen. From actual experience of 10 years as a section and extra gang foreman I realize that the efficiency of track men today is away below par as compared with ten years ago. The first cause of this decline, in my opinion, is the class of labor that is now employed on the track. Ten or even five years ago 6 men on a section were considered a good gang; now the force comprises 10 and 12. Five years ago section laborers received $1.40 per day for 10 hours; now they get from $2.75 to $3 for 8 hours. For $1.40 we secured good white men, but the time came when $1.40 was not enough to meet living conditions. Consequently the white labor left the track in search of higher wages. Almost all extra gangs were then pulled off and section gangs worked short-handed for a few years. Finally it was realized that something must be done, for the track was getting in bad condition. The companies in this part of the country decided to give a small raise in wages and employ foreign labor. Where only 6 white men were formerly used they placed 8 to 10 Mexicans. Since the foreigner has been employed practically all of the white men remaining have left the track for two reasons: low wages and having to work with Mexicans.

The Mexicans have realized that they are very much in demand by the railroads and most of them take advantage of a foreman because they know that he is unable to get any other kind of men. They loaf on the job, slight their work and lay off from one to three days a week. Some are agitators, not of the kind we read so much about in the papers, but they will agitate among the gang to make it as hard on the foreman as they possibly can, and if a foreman has to discharge one, many times the whole gang will go.

I think it would be economy to pay enough money to attract white men to track work. I don't mean to do away with the Mexicans altogether, for we should be able to pick the best among them and do away with the custom of working two old men who are not able to do a day's work in order to keep one who is a very good worker. I believe that, unless the railroad companies raise the wages to the point where a white man can make a living for his family, each year will find the efficiency decreasing and the supply of competent foremen more depleted. A good foreman is at a premium now in this part of the country.

I believe that the time is not far off when the managements will wake up to the fact that one white man is worth at least two Mexicans. When this is realized we will see a better, more intelligent class of men on the track, and with this will come our old-time loyalty and efficiency.

J. A. SPURLOCK,
Yard Foreman, M. K. & T.

---

PRIORITY FOR RAILROAD ORDERS.—Prompted by the example of one railway supply manufacturer who has adopted the policy of special priority for railroad orders, Alba B. Johnson, president of the Railway Business Association, has sent a letter to the members of that organization urging them to give preference to orders from the railroads because of the urgent need of rehabilitation.

# EMPLOYEES RECEIVE LARGE WAGE ADVANCES

## United States Labor Board Decision, Announced July 20, Increases Pay of Men $600,000,000

ON JULY 20 the United States Labor Board announced its award of large increases in pay to railway employees in all departments. The average advance granted to the employees as a whole is about 22 per cent. It amounts to 25 per cent for maintenance of way employees and for clerks, 19½ per cent for shop employees, 23½ per cent for agents and telegraph operators and 23 per cent for engineers, firemen, conductors and trainmen. The estimated cost to the railways of this wage award is approximately $600,000,000 per year as based on the following table of approximate increases in compensation to various classes of employees:

| | Addition to Annual Payroll | Percentage of Increase Over Present Wage |
|---|---|---|
| Yardmasters and train dispatchers | $ 4,800,000 | 25 |
| Clerks | 103,900,000 | |
| Maintenance of way employees | 160,300,000 | 25 |
| Mechanics and shop laborers | 139,200,000 | 19.5 |
| Agents and telegraphers | 21,300,000 | 23.6 |
| Enginemen | 65,000,000 | 23 |
| Trainmen | 91,600,000 | |
| Marine employees | 300,000 | |
| | $586,400,000 | |

As stated in the abstract of the report presented hereafter the award covers wages only. No decision is given with regard to the questions raised concerning rules and working conditions which had been submitted by the various brotherhoods. The table below shows a comparison of the compensation paid to typical classes of employees in June, 1915, and January, 1920, as compared with the increases awarded by the board and the new rates of pay:

A COMPARISON OF BASIC WAGE RATES JUNE, 1915, JANUARY, 1920, AND JULY, 1920

| Position | Average Hourly Compensation June, 1915 | Jan., 1920 | Award July, 1920 | New Rate |
|---|---|---|---|---|
| Maintenance of way and structures foremen | $0.329 | $5.77d | $1.20d | $6.97d |
| Section foremen | .233 | 4.07d | 1.20d | 5.27d |
| Sectionmen | .150 | .379 | .085 | .464 |
| Gang foremen, M. of E. Department | .347 | 7.06d | 1.04d | 8.10d |
| Machinists | .387 | .727 | .13 | .857 |
| Painters and upholsterers | .297 | .680 | .13 | .81 |
| Car repairers | .265 | .696 | .13 | .826 |
| Mechanics' helpers and apprentices | .227 | .507 | .13 | .637 |
| Yard brakemen (switchmen or helpers) | .349 | .648 | .162 | .810 |
| Road freight engineers and motormen | .598 | .988 | .13 | 1.118 |
| Road freight firemen and helpers | .382 | .726 | .13 | .856 |
| Road freight conductors | .498 | .813 | .13 | .943 |
| Road passenger engineers | .824 | 1.184 | .10 | 1.284 |
| Road passenger firemen and helpers | .506 | .878 | .10 | .978 |
| Road passenger conductors | .669 | .971 | .125 | 1.096 |
| Telegraphers, telephoners and block operators | .264 | .565 | .10 | .665 |
| Station agents (non-telegraphers) | .253 | .63 | .05 | .68 |
| Crossing flagmen and gatemen | .115 | .33 | .085 | .415 |

Note—"d" indicates daily rate.

Some of the considerations by which the board was governed in making this award are contained in the following paragraphs taken from the text of the decision as issued:

In arriving at its decision, the board has taken into consideration, as the Transportation Act prescribes:

"(1) The scale of wages paid for similar kinds of work in other industries;
"(2) The relation between wages and the cost of living;
"(3) The hazards of the employment;
"(4) The training and skill required;
"(5) The degree of responsibility;
"(6) The character and regularity of the employment, and
"(7) Inequalities of increase in wages or of treatment, the result of previous wage orders or adjustments."

Besides the circumstances set out above the act provides the board shall consider in determining wages "other relevant circumstances." This, it understands, comprehends, among other things, the effect the action of this board may have on other wages and industries, on production generally, the relation of railroad wages to the aggregate of transportation costs and requirements for betterments, together with the burden on the entire people of railroad transportation charges.

The board has been unable to find any formula which applied to the facts would work out a just and reasonable wage for the many thousands of positions involved in this dispute. The determination of such wages is necessarily a matter of estimate and judgment in view of all the conditions; a matter on which individuals will differ widely as their information or lack of it, their interest, situation and bias may influence them.

The board has endeavored to fix such wages as will provide a decent living and secure for the children of the wage earners opportunity for education, and yet to remember that no class of Americans should receive preferred treatment and that the great mass of the people must ultimately pay a great part of the increased cost of operation entailed by the increase in wages determined herein.

It has been found by this board generally that the scale of wages paid railroad employees is substantially below that paid for similar work in outside industry, that the increase in living cost since the effective date of General Order No. 27 and its supplements has thrown wages below the pre-war standard of living of these employees and that justice as well as the maintenance of an essential industry in an efficient condition require a substantial increase to practically all classes.

There are in the dispute as presented questions involving rules and working conditions, some of which are interwoven with and materially affect earnings and wages. Adequate investigation and consideration of these questions would demand time. Existing conditions required that the board should make as early decision of the wage question as practicable. For that reason it has been necessary—and both parties to the controversy have indicated it to be their judgment and wish—that the board should separate the questions involving rules and working conditions from the wage questions. Accordingly, the board has not undertaken herein to consider or change the rules and agreements now existing or in force by the authority of the United States Railroad Administration or otherwise and this decision will be so understood and applied.

The board assumes as the basis of this decision the continuance in full force and effect of the rules, work-

ing conditions and agreements in force under the authority of the United States Railroad Administration. Pending the presentation, consideration and determination of the questions pertaining to the continuation or modification of such rules, conditions and agreements no changes therein shall be made except by agreement between the carrier and employees concerned.

It is further declared that this board, finding it necessary to adopt a basis for the rates and advances decided on, has adopted the rates established by or under the authority of the United States Railroad Administration. The intent of this decision is that the named increase except as otherwise stated shall be added to the rate of compensation established by and under the authority of the United States Railroad Administration.

### MAINTENANCE OF WAY AND STRUCTURES AND UNSKILLED FORCES SPECIFIED

Add to the rates established by or under the authority of the United States Railroad Administration, for each of the hereafter named classes, the following amounts per hour:

Sec. 1. Building, bridge, painter, construction, mason and concrete, water supply, and plumber foremen, except such water supply, and plumber foremen as were paid under the provisions of Supplement No. 4 to General Order No. 27.....15 cents.

Sec. 2. Assistant building, bridge, painter, construction, mason and concrete, water supply, and plumber foremen, and for coal wharf, coal chute, and fence gang foremen, pile driver, ditching and hoisting engineers and bridge inspectors, except such assistant water supply and plumber foremen as were paid under the provisions of Supplement No. 4 to General Order No. 27....15 cents.

Sec. 3. Section, track and maintenance foremen, and assistant section, track and maintenance foremen.....15 cents.

Sec. 4. Mechanics in the maintenance of way and bridge and building departments, except those that come under the provsions of the national agreement with the Federated Shop Trades.....15 cents.

Sec. 5. Mechanics' helpers in the maintenance of way and bridge and building departments, except those that come under the provisions of the national agreement with the Federated Shop Trades.....8½ cents.

Sec. 6. Track laborers, and all common laborers in the maintenance of way department and in and around shops and roundhouses, not otherwise provided for herein.....8½ cents.

Sec. 7. Drawbridge tenders and assistants, pile-driver, ditching and hoisting firemen, pumper engineers and pumpers, crossing watchmen or flagmen, and lamp lighters and tenders....8½ cents.

Sec. 8. Laborers employed in and around shops and roundhouses, such as engine watchmen and wipers, fire builders, ash-pit men, flue borers, coal passers (except those coming under the provisions of Article VIII, Section 3, this decision), coal chute men, etc.....10 cents.

### SIGNAL DEPARTMENT EMPLOYEES

Add to the rates established by or under authority of the United States Railroad Administration, for each of the classes named below, the following amounts per hour:

Sec. 1. Signal foremen, assistant signal foremen and signal inspectors .....13 cents.

Sec. 2. Leading maintainers, gang foremen and leading signalmen .....13 cents.

Sec. 3. Signalmen, assistant signalmen, signal maintainers and assistant signal maintainers.....13 cents.

Sec. 4. Helpers .....10 cents.

### GENERAL APPLICATION

Sec. 1. The increases in wages and the rates hereby established shall be effective as of May 1, 1920, and are to be paid according to the time served to all who were then in the carriers' service and remained therein, or who have since come into such service and remained therein.

Sec. 2. The provisions of this decision will not apply in cases where amounts less than $30 per month are paid to individuals for special service which takes only a portion of their time from outside employment or business.

Sec. 3. Increases specified in this decision are to be added to the hourly rates as established by or under the authority of the United States Railroad Administration for employees now being paid by the hour. For employees paid by the day, add eight times the hourly increase specified to the daily rate. For employees paid by the month, add 204 times the hourly rate specified to the monthly rate.

Sec. 4. Each carrier will in payment to employees on and after August 1, 1920, include therein the increases in wages and the rates hereby established.

Sec. 5. The amounts due in back pay from May 1, 1920, to July, 31, 1920, inclusive, in accordance with the provisions of this decision, will be computed and payment made to the employees separately from the regular monthly or semi-monthly payments, so that employees will know the exact amount of their back payments.

Recognizing the clerical work necessary to make these computations for back pay and the probable delay before the entire period can be covered, each month, beginning with May, 1920, shall be computed as soon as practicable and, as soon as completed, payment shall be made.

Sec. 6. The increases in wages and the rates hereby established shall be incorporated in and become a part of existing agreements or schedules.

Sec. 7. Except as specifically modified herein, the rules regulating payments of overtime or working conditions in all branches of service, and the established and accepted methods of computing time and compensation thereunder, shall remain in effect until or unless changed in the manner provided by the Transportation Act, 1920.

Sec. 8. It is not intended in this decision to include or fix rates for any officials of the carriers affected except that class designated in the Transportation Act of 1920, as "Subordinate Officials," and who are included in the act as within the jurisdiction of this Board. The Act provides that the term "Subordinate Officials" includes officials of carriers of such class or rank as the Interstate Commerce Commission shall designate by regulation duly formulated and issued. Hence, whenever in this decision words are used such as "foremen," "supervisor," etc., which may apply to officials, such words are intended to apply to only such classes of subordinate officials as are now or may hereafter be defined and classified by the Interstate Commerce Commission as such subordinate officials.

### INTERPRETATION OF THIS DECISION

Sec. 1. Should a dispute arise between the management and the employees of any of the carriers as to the meaning or intent of this decision, which cannot be decided in conference between the parties directly interested, such dispute shall be referred to the United States Railroad Labor Board in the manner provided by the Transportation Act, 1920.

Sec. 2. All such disputes shall be presented in a concrete joint signed statement setting forth: (1) the article of this decision involved, (2) the facts in the case, (3) the position of the employees, and (4) the position of the management thereon. Where supporting documentary evidence is used it shall be attached in the form of exhibits.

Sec. 3. Such presentations shall be transmitted to the Secretary of the United States Railroad Labor Board who shall place same before the Board for final disposition.

## WHAT IS DRY ROT?*

THE TERM "dry rot," the Forest Products Laboratory finds, is applied by many persons to any decay which is found in wood in a comparatively dry situation. Thus loosely used, the term actually includes all decay in wood, since wood kept sufficiently wet cannot decay.

In the more limited sense in which pathologists use the term, "dry rot" applies only to the work of a certain house fungus called *Merulius lachrymans*. This fungus gains its distinction from the fact that it is frequently found growing in timbers without any apparent moisture supply; in reality it does not grow without moisture and is as powerless as any other fungus to infect thoroughly dry wood. Given moist wood in which to germinate, it is able to make its way a surprisingly long distance in dry timbers, drawing the water it needs from the moist wood through a conduit system of slender, minutely-porous strands.

Wood in the typical advanced stage of dry rot is shrunken, yellow to brown in color, and filled with radial and longitudinal shrinkage cracks, roughly forming cubes. In many instances these cracks are filled with a white felty mass, the interwoven strands of the fungus. The decayed wood is so brittle and friable that it can easily be crushed into powder.

*Technical Note No. 105, United States Forest Products Laboratory, Madison, Wis.

## FOREST PRODUCTS LABORATORY PROPOSES STUDY OF THE PROTECTION OF PILING FROM MARINE BORERS

IN SPITE OF the progress made in pile protection in the past, there is not yet available a uniformly reliable and satisfactory method for preventing damage by marine borers. Creosoting is the most widely used protective method, and it has proved its great value. It has not been uniformly successful, however, and cases where creosoted piling has been destroyed much sooner than was expected are not uncommon. Perhaps for the most part this has been due to irregular or insufficient penetration, but there is evidence to the effect that in some cases the toxicity of the oil itself has not been sufficient, or has not been permanent. Whatever the reason, the fact remains that too frequently creosoted piling fails to give the service it should.

Mechanical protection in the form of lock joint pipe, concrete coatings, treated battens, and a great variety of other coatings or pile armors have been tried. Some of them have been used with apparent success for a number of years by some companies, but the service being obtained from them is not well known and their use does not seem to have become general.

There is no place to which an engineer can turn for information on the length of life which has been obtained in actual service from piling of various species and various methods of protection. The life is known to vary for different harbors, because the type of borers prevalent and the severity of their attack vary. Although so much information which is needed by engineers engaged in the design, construction and maintenance of piling structures is lacking, and adequate steps are not being taken to obtain it, the problem is of the greatest economic importance. Lack of definite information is costing the railroads, the government, and all the other agencies which maintain structures immense sums of money annually. Putting it in other words, placing complete information of the value of present protective methods in the hands of those who need it would result in an enormous saving. The development of new and more effective methods would be a still greater boon. To the producer of wooden piling, the wood preserving companies, the producers of creosote, and the manufacturers of structural timber it would be of great value to know clearly the effectiveness of various pile protection methods, to develop new or improved preservatives, and to show under what conditions of exposure and treatment satisfaction may be expected from the use of wooden seaport structures.

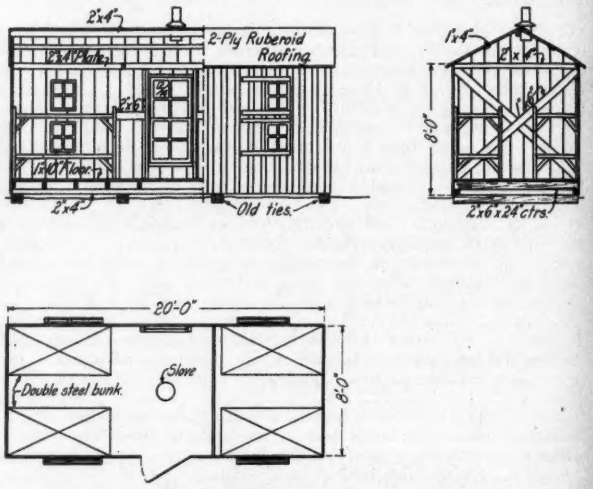
The Forest Products Laboratory, Madison, Wis., during the ten years of its existence, has been studying various phases of the subject, and has collected a considerable amount of valuable data. It has never been able, however, to give to the subject the time and attention it deserves. Realizing the increasing importance of the subject, and the great value of the information which would be obtained by an intensive study, the laboratory has now suggested a plan of action in outline form only, the principal details of which are:

1. A survey of the whole Atlantic, Pacific and Gulf coasts of the United States, covering all the harbors of any importance, to obtain information on: (a) The type or types of borers present. (b) The seriousness of their depredations. (c) The kinds of piling used. (d) The durability of the piling in the various harbors. (e) The methods of protection used against the borers in different harbors and their effectiveness.

This work will require several years for its completion, although much valuable information will be obtained fairly promptly. It is estimated that the work will cost about $50,000 for the first three years, nearly one-half of which will be required during the first year. It is not anticipated that the Forest Service will be able to secure a sufficient appropriation for this work from the government in the near future and if it is to be carried on, aggressive co-operation must be obtained from other interested agencies who will benefit from the results obtained, including the railways, the timber producers and the commercial timber treating companies. Plans are now under way to bring this subject to the attention of those interested in the hope that finances may be arranged so that the work can be undertaken promptly.

## HOW THE ROCK ISLAND REDUCES THE USE OF BUNK CARS

DURING THE LAST three years many of the roads constructed camp buildings for housing maintenance of way laborers, because it was felt that the fixed structure would afford more sanitary and comfortable quarters




**The Houses May Be Transported on Flat Cars**

for the men than could be supplied by the ordinary bunk car. At the present time the use of a substitute for the bunk car must be urged for a more vital reason, namely, the extreme shortage of box cars for the handling of freight. Every car that is in fit condition for revenue service must be so used at this time. Therefore, the problem is how to house the working forces so as to use a minimum of bunk cars and still retain the portable features so necessary for many classes of work.

This has been accomplished by the Chicago, Rock Island & Pacific through the use of small portable houses like that shown in the drawing. These houses can be transported from place to place on flat cars on which they can be loaded readily by cranes. They are used only as sleeping quarters, enough of the kitchen, mess and commissary cars being retained in service to take care of the men accommodated in the bunk houses. As seen in the drawing the houses are 20 ft. long by 8 ft. wide and 8 ft. high under the eaves. The cost of these houses, including four double steel bunks and eight sanitary mattresses, is estimated at $165. In addition to a large window in the center of one wall opposite the door, each house is equipped with a window beside each bunk, so that each man has a sliding window under his own control. Two-ply rubberoid roofing covers the roof, which is equipped with a smoke jack so that a stove may be installed if necessary for winter use.

# PRICELESS PROPERTY.

## Foreman Wilson and Claim Agent Higgins Set the Price Some Twenty Years Ago

BY CHARLES H. SMITH.

THE C. G. R. & W. was built some twenty-five years ago. When the two construction gangs met on the Southwestern division—one gang working from each terminal—and the ends of the track were bolted together the natives for miles around come to see the first train go over the track. It was a sort of holiday for the farmers living near the junction point. They were glad to see the railroad in actual operation, even if their fields had been cut up in all sorts of inconvenient geometrical figures. The builders of the road were elated to see the reality of their dreams. The two largest cities of the state were connected by a direct line at last.

Silas Winslow watched the first train as it ran over the line. He had heard that it was coming and as he did his chores he listened closely for the blast of its whistle that would herald its approach. When the first faint sound of it reached his ears he left off feeding his pigs and hurried back to where the railroad crossed his farm. He had only a quarter mile to walk, for the right of way bisected his farm. But while the railroad divided his farm into two nearly equal parts the shape of each part was what geometricians term a rhombus. Silas had a different name for the shapes. They were "gol darned nuisances" in his phraseology. Even then he had visions of the numberless turnings he would make when he tilled his triangular fields. When he plowed them at the end of every furrow he would have to lift his heavy plow around; when he cultivated them at every turn his horse would tramp down a hill or two of his corn crop; and when he used his reaper, well—he could see the beginning of his troubles. The triangular fields were going to be "gol darned nuisances" all right.

Such were Silas' thoughts as he stood on the right of way and waited for the first train to come. As the little locomotive puffed its way past him pulling its nondescript equipment the engineer and nearly everyone on his side of the train waved their hands at him. Silas returned their salutation cordially. After all, the railroad was a good thing for everybody. Had to have railroads for the development of the country, he thought. Then, too, if the company put a station over at Grattan—three miles west—it would save him a haul of nearly seventeen miles on every load of wheat he marketed. Besides, the company had treated him pretty fair. They had paid him a fairly good price for his land and had put a cattle pass in the small fill near the center of his farm. No need to drive his cows across the track to get them to his pasture land. All he had to do was to turn them in the lane and they could go down to the pass and under the track into the pasture field. Silas was fairly well satisfied with the advent of the railroad.

The station at Grattan was never built. Instead, the company decided to place a station four miles west of Grattan at Riverside, and Silas had to haul his wheat seven miles to the nearest accessible railroad station. It did seem to Silas as if the company could have built the station at Grattan, Grattan being the larger of the two places. Hastings, the first station east of Silas' farm, was five miles distant, but the wagon roads were so poor that he never went there with a load. It was a disappointment—the failure to build a station at Grattan—but still the company had probably looked things over and knew best, he thought. On the whole, Silas was inclined to be very charitable—even with a corporation.

Five years passed by and the railroad became a familiar institution. Farmers no longer stopped their teams to watch the trains go by and the horses no longer attempted to run away whenever they heard the shrill whistle of a locomotive. The track in charge of section men had been greatly improved. James Smalley had charge of the section that ran through Silas Winslow's farm. Smalley's wasn't very friendly, in Silas' estimation. He seemed too bossy. He delegated powers to himself which were all out of proportion with his position as foreman. The farmers along the line were made to feel that the railroad company regarded them as possible enemies who must be watched. It is doubtful that Smalley could have obtained any help if labor had not been plentiful. Still, as Silas would have told you, it takes all kinds of people to make a world.

August of that year was hot and dry. The corn leaves curled up in the scorching sun and the pastures turned brown for lack of rain. The air grew hazy and the distant woods seemed enveloped in a thin, blue smoke. At times when the wind was in the north or northwest the air was filled with light-colored smoke—the north woods were burning, the papers reported. The farmers prayed for rain to save their parching crops. But they watched the skies in vain; no rain came. The sky remained cloudless and the sun went down each day in a copper-hued sunset.

One afternoon when the drought was at its worst a locomotive passed over the line pulling what was in those days a heavy train. It coughed and sputtered as it dragged the string of box cars up the short grade. Cinders rained on the roofs of the cars and along the track. When it had passed by Silas Winslow's farm a whisp of white smoke rose from the dry, brown grass on the right of way. For a minute it smoldered and then burst into flame. Fanned by a northwest wind, it raced along the track, leaving a blackened strip of ground behind it, and crossed the fence and was in Silas' woods. Silas discovered the fire soon after it had reached his property and, hastily summoning his neighbors, he ran to the woods to put it out. But before the handful of farmers and the five sectionmen who came soon afterwards could get control of it the flames had consumed five acres of the woods, burning the smaller trees and killing the larger ones, and also burning up many cords of hard maple wood that Silas had been seasoning for his winter use. It was a heavy loss for Silas.

When the fire was all out except for a few smoldering tree stumps Smalley stepped up to Silas. "Well, Winslow, this fire has damaged your woods a little. How much do you figure your loss?"

"You want to report it?" asked the farmer.

"Yes, I'll have to send in a report and I'd like to get your estimate of the damage done. It can's be so very much, though—can it?"

For a few minutes Silas stroked his beard on the point of his chin while he thoughtfully surveyed his burned land. "Yes," he said slowly at last, "I reckon it has

damaged me considerable. . . . When have you got to get this report in?"

"Soon as I can, Supposed to be sent in within twenty-four hours after the fire," replied Smalley promptly.

"I'll let you know tomorrow. I got to think this over first."

The foreman shrugged his shoulders. "All right, tomorrow, then," he replied, in the manner of one humoring a petulant child.

The next morning when Smalley and his men pumped their hand car over the section Silas was in a field adjoining the track cutting corn for his cows. When he saw the hand car approaching he stuck his corn knife in a shock of corn and walked over to the right of way fence. Smalley applied the brake to the car and walked over to where Silas was standing by the fence.

"Well, did you get it all figured out?" he asked, with a touch of sarcasm in his voice. His manner plainly indicated that the loss was so trifling that it ought not to take anyone more than a minute to figure the amount.

"Yes, I've got it all thought out," answered Silas. "That fire burned up five acres of nice maple and beech woods for me and about fifty cords of wood that I had seasoning for this winter. By the very lowest estimate, the least figure any man could honestly put, I cal'late that the fire done me six hundred dollars damage. The cordwood alone was worth two dollars a cord. And the timber that has been destroyed and killed was worth at the lowest price a hundred dollars an acre. It would be six hundred dollars if I put in for what it was worth."

Smalley laughed scornfully. "You'll never get it. It wasn't worth anything like that."

"Yes, Mr. Smalley. It was worth all of six hundred dollars—to any man. But I'm not going to ask the railroad company that much. I've thought it all over. When the railroad came through here I didn't want it to go crosst my farm—it divides the fields up so bad. But it crossed my land, and I guess it's all right—it had to cross someone's farm. Might as well be mine as anyone else's, I suppose. The railroad has been a good thing for everybody, too. Saves me a good many miles haul—even if they didn't put a station at Grattan, like I hoped they would. And this fire was an accident—might have happened with anyone. The railroad company couldn't help it. All of us are likely to have an accident of some sort sooner or later. And I've taken all of this into consideration and I'm just going to ask the company for enough money to hire my winter's wood cut. I've got the trees standing, but I haven't time to cut it. The wood I had cut and cal'latin' on burnin' this winter is gone and I'll have to have some more cut. I figure that fifty dollars will just about pay for cuttin' it. You can put that amount on your report, Mr. Smalley. It was an accident, this fire, and I don't want to be hard on the railroad company."

"All right, Winslow. That's more like it. I'll put that in on my report," agreed the foreman.

In the course of a few weeks a claim agent dropped off a train at Smalley's headquarters. He had wired the foreman that he would arrive on the train on that date and Smalley was at the car house to meet him when the train slowed up to let him off. The claim agent handed the foreman his credentials.

"I want to see that farmer named Winslow — Silas Winslow, who had some woods burned over about three weeks ago," he explained. "Know where he lives, I suppose?"

"Yes, Mr. Higgins," answered Smalley. "I'll take you right over to his farm." Then, turning to his crew; "Put the car on the track, men."

While the men were lifting the hand car to the rails the foreman stepped to one side and beckoned the claim agent. The two moved out of earshot of the men.

"Say," said Smalley in a low voice, "You know Winslow is asking for fifty dollars damages, but I believe you can settle with him for twenty-five. Between you and me, the damage is about six hundred dollars, but why should the company pay him fifty dollars when they can settle with him for twenty-five?"

"No reason," agreed Higgins. "I'll remember what you say when we deal with him."

Smalley and the claim agent rode over on the hand car to Silas Winslow's farm and, going to the farmer's house, made their errand known. Silas joined them and the three went over to the woods to inspect the area burned. The number of acres destroyed, the quality of the timber that stood on it and the amount of cordwood were mentioned and lightly disposed of by the claim agent. Finally he turned to Silas.

"What do you claim your loss is?" he asked.

"I'm not considerin' my loss at all," replied Silas. "That would be around six hundred dollars. It was an accident, and accidents happen to anyone. And I want to be fair with the railroad company. I told Mr. Smalley what I wanted. It will cost me about fifty dollars to hire my winter wood cut. Got to hire it done now, account of that cordwood burnin' that I was plannin' on for winter. If the company will pay me fifty dollars I'll call it square."

"Oh, Mr. Winslow," protested Higgins, "we're not buying your land, you know. Fifty dollars? Surely not that much for a few acres of wood-lot and a few cords of wood. Now, I think that twenty-five dollars would be a very generous settlement. Say twenty-five and I'll have a check mailed you for that amount right away."

For a moment Silas was stunned. He had wanted to do the right thing, the magnanimous thing; had believed that he was acting in a most generous manner towards the company. His loss he well knew would reach $600. He had offered to settle for a pittance—$50. And the railroad company was trying to beat him down to $25. It was too much. The confident smile left his gray eyes; his mouth tightened into a straight line. The railroad company was his enemy.

"No. I said fifty dollars. That's not even a tenth part of what I've been damaged. I'd ask you for six hundred if I wanted the full amount," he replied resentfully.

Claim agents in the early days did not possess the finesse and diplomacy of their successors. But they managed to "get away with it," as the phrase goes. The big stick method, no longer in general use, accomplished resules because the farmers disliked "going to law." But Higgins' next speech stamped him as being even more abrupt than his colleagues of that day.

"Mr. Winslow, I haven't time to argue with you. I'll spring my offer to thirty-five dollars. You can either take that or sue," he declared. "We've got lawyers hired to fight you fellows who are trying to skin us on these bogus claims. Thirty-five dollars or sue. Take your choice."

In the end, rather than become involved in a lawsuit, Silas agreed to accept $35 in settlement of his $600 loss.

Twenty years passed by and the incident of the burned timber land seemed forgotten by everyone. Every year Silas hauled his wheat to the Riverside elevator, to be shipped to various points. At infrequent intervals he purchased a ticket at the Riverside station and visited his more distant relatives. His relations with the railroad were merely those of any ordinray citizen. The railhoad company made wonderful improvements on their

line during the score of years; improvements which Silas witnessed with something akin to indifference. Why should he be especially interested in a big and, he was convinced, a soulless corporation? But if Silas was not interested in the railroad company they were not entirely uninterested in him.

One day as Silas was riding on his mowing machine cutting a field of clover he saw a man coming across his farm towards him. He did not recognize him as anyone he had ever seen and so continued on his way around the meadow. When he came back to the side towards which the stranger was approaching he found the man, who was apparently not a farmer, standing beside the last swath cut. The stranger held up his arm and Silas stopped his team.

"Good morning," said the man. "Is this Mr. Silas Winslow, the owner of this farm?"

"Yes, sir."

"My name is Slack and I represent the railroad company, Mr. Winslow. I've come to see you about the cattle pass that you own under our tracks."

Silas nodded silently.

"The fact is, Mr. Winslow, that the old wooden pass is about done for. And we've either got to buy the pass of you or build a new one. If you will accept a reasonable amount the company will probably buy the pass from you and fill it in. That's what I'm here for—to find out what you will take for it."

"It is not for sale. I don't care to sell it," replied Silas very quietly.

"But, Mr. Winslow, you will sell for a certain price. Now, that pass has a certain value to you; it is worth so much to you. At some price you will sell it. The question is, how much do you want for it? I'll be quite frank with you, Mr. Winslow. If we have to build that pass it will cost us, well, at least five thousand dollars. If you will sell to us we can fill it in and save that amount. The company is willing to pay a reasonable amount—but no more than a reasonable amount. If they can't get the pass at what they think is a fair figure, why, they'll simply put in a new concrete pass that will be there a hundred years after you and I are dead and buried, Mr. Winslow. Once they put in such a pass, they won't give you a nickel for your holding. Mr. Winslow, I'm offering you some easy money. What do you say?"

"No, Mr. Slack. You're simply wasting your time. I won't sell to the company at any price. I don't want any dealings with the road." He picked up his lines to resume cutting hay. And although Slack tried every argument he could command, he could not get the old farmer to set any price on the pass.

Since then Slack, the company's real estate inspector, has been to see Silas many times, arguing, urging and pleading that Silas set a price on his cattle pass. But always Silas answers quietly and determinedly, "It's not for sale at any price. I don't care to sell it."

Silas Winslow's cattle pass will soon have to be rebuilt. Its rotting piles and timbers demand that it be replaced with new material. The cost will be nearer $10,000 than Slack's figure. The foreman of bridges and buildings inspects it nearly every fortnight, for he distrusts its security. After every inspection he urgently advises that the pass be rebuilt immediately. But the chief engineer still has hopes that Silas will name a moderate amount which he will accept for his holding and that the pass can be then filled in.

The cattle pass is, as a matter of fact, priceless. Foreman James Wilson and Claim Agent Higgins set the price some twenty years ago when they settled with Silas for his burned timber land. And the price has not been changed by Silas in all the years since then.

## RAILROADING IN ALASKA NOT AN EASY TASK

THAT THE construction and maintenance of a railway in a country as far north as Alaska is not without its special problems is indicated by a statement of F. A. Hansen, engineer of maintenance and construction for the Alaskan Engineering Commission, published in a recent issue of the Alaska Railroad Record as follows:

The ordinary difficulties of maintenance and construction of railways are greatly accentuated by the extremes of climate in Alaska. Certainly in no part of the United States does the thermometer range from 100 deg. in the shade in the summer to 60 and 70 deg. below zero in the winter, and no other place, except perhaps in the tropics, is the precipitation so great, ranging from 40 to 80 in. in the rainy districts. These conditions in a rugged country mean of course, avalanches, torrents and all the peculiar effects of the tremendous lifting and distorting power of freezing moisture.

The line of the Alaska Government Railroad from Seward to Mile 90 passes through a district that combines all the above extremes except the extremely low temperature. Flanked by glaciers and rugged mountain sides that are saturated by heavy rainfall and alternately frozen by the north wind and thawed by the breezes of the Japan current blowing through Portage pass, the railroad finds its difficult way. It is then confronted by the tremendous tides of Turnagain Arm, second only to those of the Bay of Fundy. In the winter a sea of ice moving at the rate of 10 miles an hour tearing at the rock-protected slopes of the railway, having a tendency to lift trestles from their foundations. This has been overcome by filling in around the piling with heavy rock where the piling extends into Turnagain Arm.

Under the influence of a warm chinook wind the snow on slopes that reach back into the mountains for a mile or two, starts to melt and then with a roar comes the "slide." While snowslides cannot be stopped it becomes necessary to build snow sheds along the line where these slides usually cross the railroad.

Another problem is the sudden rise in temperature and rain in January which saturates the snow and fills the flangeway between the rails with water as there is no other escape. Then a sudden drop in temperature will freeze the water settled, causing a solid sheet of ice covering the flangeway and over the top of the rails. This is overcome by watching the weather conditions and operating trains over this piece of track continuously and using the flanger to throw out the water as fast as it accumulates.

The difficulties of construction have been extraordinary this year. Pushing ahead from Indian river, which is at the head of navigation on the Susitna river, it was necessary to transport supplies into the Broad Pass country over the snow which has averaged since the first of January at least 10 ft. in depth. Five and six feet of snow will fall from Talkeetna to the Broad Pass summit in a single storm. Of course all trails are obliterated and must be remade despite the fact that teams are constantly on the trail. For long distances because of the rough country constituting the banks of the river the trail is built on the river itself. A sudden thaw and the river opens up and the trail is gone. Several times teamsters have had narrow escapes with their lives as sled and cargo sank beneath the softened ice. Starting with a load from the end of steel a chinook blowing, the thermometer barely above the freezing point by nightfall it may fall to 40 below zero and both horses and men exhausted by exposure make their way to Camp. One such experience as this may ruin a good team.

Not the least affected by the heavy snow have been the engineers. Running surveys in 10 feet of snow, climbing slippery side hills to cross section, and digging out their basic data from under several feet of snow, is another trying experience.

Camp construction for the stationmen and supply camps seem almost impossible with timbers frozen solid and everything deep in snow and ice. Keeping warm under canvas, with the thermometer low is a difficult proposition.

These are a few of the many difficulties that confront engineers in railroad construction in Alaska, and from this it should be readily understood that it is absolutely necessary for the engineers to be constantly on the alert in the winter months to see that the main camps are established, and material, supplies and contractors' equipment are distributed all along the line. This means a big saving because it is much easier and cheaper to transport supplies and material by means of sleds over the ice than to build expensive wagon roads of corduroy over tundra and muskeg.

Winter operations as described have many advantages insofar as the equipment, supplies and material can be transported on sleds to the different distributing points and there they are ready for construction work during the short season of summer months in June, July, August and part of September.

# Distributing Ties for Service Demanded

THE PHILADELPHIA & READING and affiliated lines have adopted a new system of distribution of cross ties which is designed to insure their use in the service for which they are best suited. This has led to the issuance of a set of printed instructions by the vice-president and general manager, containing a classification of tracks according to the character of traffic and speeds and two classifications for the ties, one for accounting purposes and the other for service. Tables are also given showing what "service classes" of ties should be used on the various classes of track comprising the railway.

This is one step in a program of these roads to obtain the maximum service life from the ties used, particularly in insuring comparable results in resistance to both mechanical destruction and influences of decay. To this end, all ties are adzed and bored before treatment and general use is made of tie plates. Tie plates are used on all ties in main tracks, also all creosoted ties in any track and on all bridge ties and switch timber. One indication of the tendency towards greater refinement in wood preservation practice is the fact that only three species of wood are used in the track without treatment, namely, black walnut, black locust and chestnut.

The portions of the new specification relating to the new method of classification and the manner of using it in service are given below:

The object of these instructions is to secure the placement of ties in tracks in order to obtain the longest possible mechanical life from each grade and size of tie. This necessitates the classification of tracks in accordance with mechanical wear as follows:

Class 1—Main tracks, frequent heavy tonnage with moderate speed.

Class 2—Main tracks, high passenger speed, mixed traffic, or equivalent.

Class 3—Main tracks of important branches, including third and fourth tracks and running tracks in important yards.

Class 4—Main tracks of unimportant branches and passing sidings of important branches.

Class 5—Station, storage, yard and industrial tracks and passing sidings on unimportant branches.

The accounting of cross ties shall be made according to the following groups:

Group Ua—Black locust, white oaks, black walnut.

Group Ud—Chestnut.

Group Ta—Ashes, hickories, honey locust, red oaks.

Group Tb—"Sap" pines.

Group Tc—Beech, birches, cherry, gums, hard maples.

Group Td—Elms, hackberry, soft maples, spruces, sycamore, white walnut.

Each group has five different grades, depending on the size and whether hewd or sawed, these being stamped 1, 2, 3, 4 or 5.

### CLASSIFICATION FOR SERVICE

1. Ties shall be divided into two classes according to thickness, namely: 7 in. or 6 in. thick. Ties 7 in. thick shall include all ties 7 in. thick and having at least a 7-in. face. Six-inch ties shall include all ties having less dimensions than those classed as 7-in. ties. For instance: A tie 7 in. thick with 6-in. face would be classified as a 6-in. tie.

2. Ties shall be further subdivided into four service classifications as follows:

"H" (hardwood) shall include Groups Ua, Ta, Tc, Td.

"P" (pine) shall include those pine ties showing heart the entire length of one face—part of Group Tb.

"S" (sap) shall include those pine ties not included under "P"—part of Group Tb.

"C" (chestnut) shall include all chestnut ties, Group Ud.

Thus "H" 7 in. would represent a hardwood tie such as oak 7 in. thick; and "C" 6 in. would represent a chestnut tie 6 in. thick.

All ties are to be treated except black walnut, black locust and chestnut.

All ties originating on foreign lines are to be shipped to the creosoting plant for treatment, except black walnut, black locust and chestnut, which ties shall be shipped direct to the division destination by the purchasing agent.

All ties, when received at the creosoting plant, shall be separated into groups and each group subdivided into those ties 6 in. and 7 in. thick. Not more than one service classification shall be shipped from the creosoting plant in any one car.

One end will be stamped at the creosoting plant to show the accounting classification and the other end to show the year of treatment and the service classification. For example, the accounting stamp could be "3-Ta" and the service stamp on the other end of the tie would be "20-H-7." This would represent a "hardwood tie seven inches thick, treated in 1920."

All ties shall be placed in tracks in accordance with the following track and service classification:

Tracks—Class 1 on curves, H-7 ties (hardwood, 7 in. thick).

Tracks—Class 1 on tangent, P-7-9 in. face (heart pine 7 in. thick, 9 in. face).

Tracks—Class 2 on curves 2 deg. and under, P-7-9 in. face, and on other curves H-7 (hardwood, 7 in. thick).

Tracks—Class 2, tangents, P-7-9 in. face.

Tracks—Class 3 on curves 2 deg. and under, P-7-9 in. face, and on other curves H-7.

Tracks—Class 3 on tangents, H-6 and P-7-9 in. face.

Tracks—Class 4 on curves 2 deg. and under, P-7-8 in. face, and on other curves H-6.

Tracks—Class 4 on tangents, C-7, C-6 and S-7-9 in. face, and P-6 on sidings.

Tracks—Class 5 on curves, P-6 and S-7-8 in. face.

Tracks—Class 5 on tangents, C-6, C-7, S-6, and S-7-8 in. face.

In case circumstances are such that the proper ties are not available for the repair of any given track, the supervisor shall secure the approval of the division engineer for the use of a better or poorer class of ties for such specific track. The inspector of tie renewals shall report to the supervisor any violation of these instructions which he observes.

INSTRUCTIONS FOR ORDERING CROSS TIES

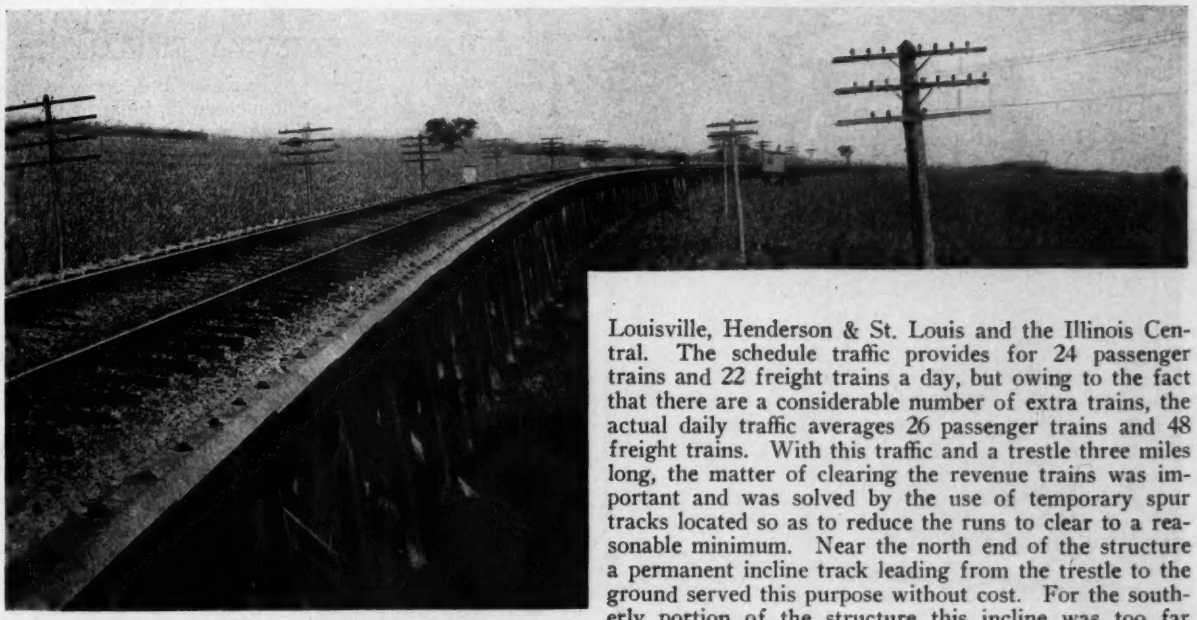
1. The section foreman shall report to the supervisor on request the ties required for tracks on his section, giving the track and service classification, and shall give the number required by reference to telegraph poles, or other definite locations. This report shall be made from actual track inspection and count.

2. The supervisor shall, so far as possible, confirm these reports by a personal track inspection, and shall order the ties from the division engineer accordingly.

3. The division engineer shall arrange for the requisition for the ties for his territory, giving the number of each service classification, which are to be shipped to each supervisor. The division engineer shall notify the creosoting plant of the destination for such ties as are to be shipped to points other than the supervisor's headquarters.

4. The engineer of maintenance of way, in co-operation with his inspectors of tie renewals, shall determine whether the requisitions are in accordance with the actual requirements.

# Renewing a Trestle Under Heavy Traffic



*View of the New Ballasted-Deck Trestle*

THE LOUISVILLE & NASHVILLE not long ago completed the replacing of a long pile trestle under heavy traffic necessitating special methods of conducting the work to avoid excessive delay. The structure in question, the approach on the north or Indiana end of the Ohio river bridge at Henderson, Ky., is about three miles long. The old structure was an open deck trestle almost entirely of untreated timber and was replaced by a creosoted timber ballasted deck pile trestle. As the height of the bents does not vary much, the work was of a decidedly uniform character throughout, so that it was possible to train the carpenter crews in the most effective methods for carrying on the work. The bents varied from 14 to 18 ft. in height for the larger part of the structure, although at the end nearest the bridge the height increased so that most of the bents were in excess of 30 ft. high. The old structure had four-pile bents 15 ft. center to center, while the new structure has bents 12 ft. center to center.

This bridge is used by the Louisville & Nashville, the Louisville, Henderson & St. Louis and the Illinois Central. The schedule traffic provides for 24 passenger trains and 22 freight trains a day, but owing to the fact that there are a considerable number of extra trains, the actual daily traffic averages 26 passenger trains and 48 freight trains. With this traffic and a trestle three miles long, the matter of clearing the revenue trains was important and was solved by the use of temporary spur tracks located so as to reduce the runs to clear to a reasonable minimum. Near the north end of the structure a permanent incline track leading from the trestle to the ground served this purpose without cost. For the southerly portion of the structure this incline was too far away, so a temporary trestle was provided which was used in three different locations, being shifted from one point to another as the work progressed from north to south. Under this arrangement the pile driving was handled without a work train crew. A slow order was issued to all trains and flagmen were maintained on the trestle in both directions from the point of operation.

For economy in handling the cars of piles, it was found most convenient to unload the piles in the yard at Henderson, whence they were delivered on the trestle by a work train. A locomotive crane was used to reload the piles and unload them into heaps on the ground alongside the trestle, from which they could be readily picked up with the pile line of the driver as needed. The difference in the spacing of the new and old bents made it possible to avoid the old bents in most cases, but where the new spacing caused the new bent to foul an old one, the new spacing was decreased a sufficient amount to avoid interference. In the case of the higher bents of the trestle, all six piles of the new bents could be driven without shifting any of the stringers. Two piles were lifted up and passed down between the stringers and

two were raised up along each side. Where the bents were lower, however, the driving of the middle pile of each half of the bent required a temporary displacement of the old stringers.

The requirements of the pile driving were that the piles should be driven to refusal and also secure as near as possible a 25-ft. penetration. The piles were driven with a cast-iron follower block equipped with a wooden cushion block bound at the top with a ring of 1¼-in. by 3-in. iron. The driver used was a Bucyrus self-propelling type with 45-ft. leads, equipped with a drop hammer, and full advantage was taken of the self-propelling feature, since the driver was handled by its own power for all movements incidental to the work.

A gang of 12 to 16 men with a foreman were employed on the driver and an average of about 12 piles

**The Old Trestle with the New Piles Driven Between the Old Bents**

were driven each day; the time lost on account of train movements is responsible for this small output. Putting on the caps and the sway and the longitudinal bracing required another gang of about 12 men and a foreman. This work was all done by hand and followed closely behind the pile driving. Because the new structure has a ballasted deck and the old one had an open deck, the new stringers were lower, therefore the new caps could be put on without any interference with the old stringers, but because the old stringers rested on corbels the caps of the new bents that fit close to the old ones interfered with these corbels, which had to be removed to give the necessary clearance.

Placing the new deck followed as an independent operation. This was handled in two distinct steps, a preliminary stage that did not interfere with the functioning of the old deck and a final step that embodied the removal of the old stringers. The old stringers were 8 in. by 18 in. in two chords of three stringers each, supported on corbels at each bent. The new deck consists of 12 lines of 6½-in. by 16-in. stringers two panel lengths long with joints staggered and ends lapped on the caps. These are covered with 3-in. by 8-in. planks 13 ft. long laid transversely.

The first step was to lay two new stringers on the caps outside the old stringers on each side. Next the old deck was jacked up enough to permit sliding in four new stringers laid flat over the tops of the caps into the space between the two old chords. This done, the ties and rails were jacked free of the old stringers a sufficient height so that the old chords could be taken out and replaced by two new stringers on each side. Enough temporary blocking was placed on top of the stringers to maintain the track at grade when the jacks were removed.

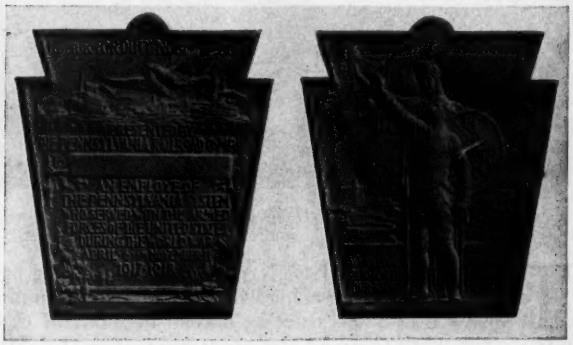
After the stringers were in place the track was again jacked up and the 3-in. by 8-in. deck planking was inserted with enough blocking under the ties to allow a minimum of four inches of ballast which was placed as soon as conditions permitted. This work was handled under the direction of A. B. McVay, supervisor of bridges and buildings at Evansville, Ind., and William Sheley, assistant supervisor, with the same headquarters.

## MEDALS FOR RAILWAY EMPLOYEES

THE PENNSYLVANIA Railroad has arranged for medals for employees who served in the armed forces of the United States during the world war. If the employee is now living the medal is given to him personally, while if he died in service or subsequently, the medal is presented to his family.

Each medal is accompanied by a letter from President Samuel Rea, reading in part as follows:

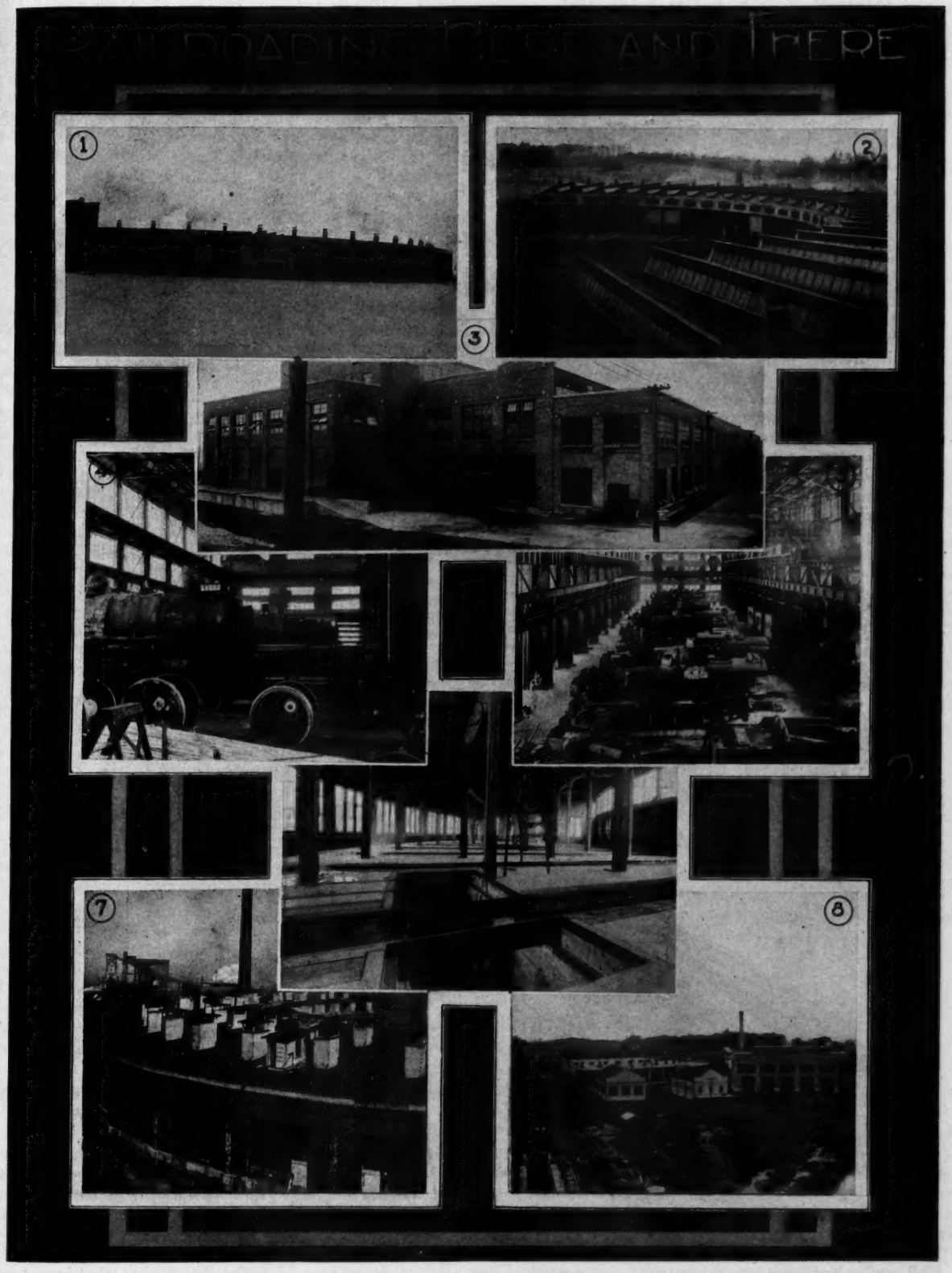
"Appreciating the unselfish patriotism and devotion to ideals and duty shown by the unusually large number of officers and employees of the Pennsylvania System who made great personal sacrifices to serve with the armed forces of our country during the World War, the board



**The Medal Presented to Employees of the Pennsylvania Who Were in Military Service**

of directors desires to commemorate the service so freely given and the duty so well done, and has, therefore, authorized and directed the preparation and distribution of a suitably engraved medal to each officer and employee so serving between the 6th of April, 1917, and the 11th of November, 1918.

"The medal is presented to you herewith, and the hope is expressed that it will ever recall the faithful and effective service rendered by you in the greatest conflict ever waged in the defense of right. In distributing these medals I take pleasure in adding a word of personal thanks and congratulations to each of you, of whom, it is unnecessary to add, I am justly proud."



**RAILROADS PROVIDE IMPROVED ROUNDHOUSE AND SHOP FACILITIES**

*(1) New 40-stall U. P. roundhouse at Council Bluffs. (2) Saw-tooth roof gives better light in D. M. & N. house at Proctor, Minn. (3) Large repair shop for the Pennsylvania at Logansport, Ind. (4 and 5) Well-lighted erecting bays of the U. P. shop at Cheyenne and Pennsylvania shop at Logansport. (6) New M. C. roundhouse at Niles, Mich. (7) Multiple smoke jacks and gypsum roof on P. & L. E. roundhouse at Haselton, Ohio. (8) General view of the Niles, Mich., engine terminal.*

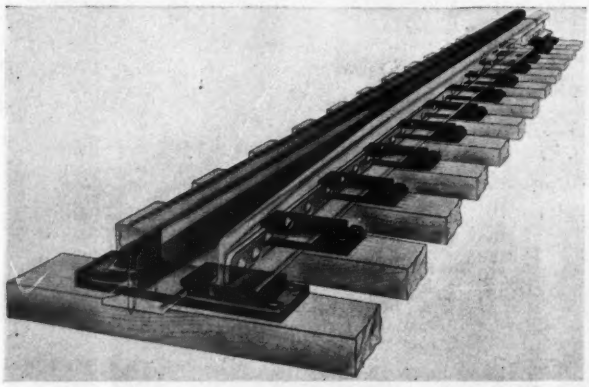
## A NEW CAMP CAR CHIMNEY

THE ILLUSTRATION shows a chimney or smoke jack for use on camp cars, camp buildings, etc., that is made entirely of cast iron. Experience with the use of sheet metal chimneys, which in many cases have afforded only a short life, is the reason for the development of the cast iron construction for this purpose. These chimneys are made in two sizes to fit 5-in. and 6-in. stovepipe and for 1-in. and 2-in. pitches of the roof. The vertical height is 23 in. and the jack is made with a ventilating arrangement at the base to make it fire-safe. As the cast iron is only $\frac{3}{16}$ in. thick, the load on the roof is not so great as to require any special construction. These chimneys are made by the Paul Dickinson Company, Chicago, following the standards used in the smoke jacks, ventilators, etc., manufactured by that company.

**The Jack on a Car Roof**

## A FLAT-BASE SWITCH POINT

A NEW DESIGN of switch has been placed on the market which reduces in large measure the amount that the base of the switch point must be cut away in order to fit up against the stock rail. The manner in which this is accomplished is simple. The switch plates are fitted with risers of sufficient height so that the base of the switch rail, which is of a smaller section than the stock rail, is entirely above the base of the stock rail. Therefore, with the head of the switch rail planed exactly as in common practice, only a small portion of the base needs to be cut away. How this is accomplished is shown in the illustration, in which the stock rail is of 100-lb. section, while the switch rail is made from an 80-lb. rail. Not only does this method give a much wider and more secure base to the switch rail near the point, but the planing of the base in making the point is greatly simplified, since only a simple vertical cut is required.

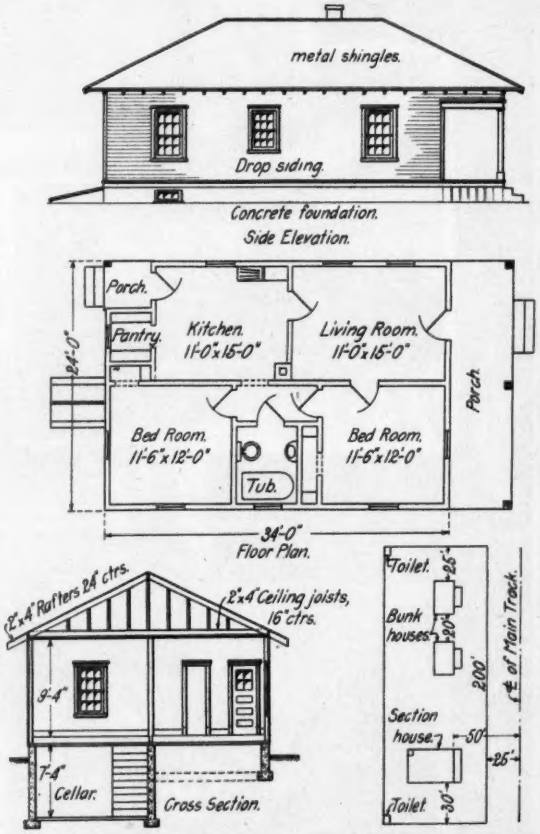


**Phantom View of a Switch Equipped with Flat-Base Switch Point**

A switch of this design was in service in the station yard of the Terminal Railroad Association of St. Louis from March 7, 1919, to January 19, 1920, a period of 10 months and two weeks, the place being one where the normal life of a switch had been only three months. This switch was in a No. 7 turnout that carries the trains of 18 railroads, with locomotives of all sizes, handling possenger equipment, including a mountain type locomotive weighing 137 tons without the tender. The traffic at this point averaged 80 passenger trains, totaling 560 cars, 50 coach drags totaling 350 cars, and 50 light engine movements. The switch is known as the Positive switch and is manufactured by the Positive Rail Anchor Company of Marion, Ind.

## COMFORTABLE HOUSES FOR SECTION FOREMEN

THE MISSOURI, KANSAS & TEXAS lines are planning to construct 15 or 20 new dwellings for their section foremen during the current year, in accordance with new standard plans prepared in the office of the chief engineer, the houses being of more permanent and modern construction than railroads have generally provided for this purpose. For instance, as shown on the drawing, the plan provides for a bathroom and toilet in cases where water and sewerage are available.




**Side Elevation, Plan and Section of the House and a Typical Layout of the House on the Right-of-Way**

The standard plans of the railroad provide for inclosing the section house and two bunk houses, where required, in an area 75 ft. by 200 ft., bounded by a board fence 4 ft. high. This provides ample space for gardening. The limits of this area are placed not closer than 75 ft. to the main line of the railroad. The plans were prepared by A. L. Sparks, architect, under the general supervision of F. Ringer, chief engineer.

ONE OF THE best evidences of the high esteem in which the associations of maintenance of way men are held in the eyes of railway officers was the attitude taken by the officers of the United States Railroad Administration with regard to attendance at the conventions of these organizations on the part of the supervisory forces which make up the bulk of their membership. The *Railway Maintenance Engineer* has long been a firm believer in the value of attendance at these meetings and has repeatedly called attention to the benefits to be derived, but in view of the fact that the end of government control has removed what was an effective agency for the encouragement of these meetings, it is felt that special attention should be directed to the various elements of benefit both to the men and to the railways which are to accrue from attendance and conscientious participation in these meetings. For this reason we have requested a number of railway men, representative of membership in the associations which hold their meetings in the fall, namely, the Roadmasters' and Maintenance of Way Association, the American Railway Bridge and Building Association and the Maintenance of Way Master Painters' Association, to give their ideas of the value of these meetings from the standpoint of their personal interests and responsibilities.

> Attendance at National Maintenance of Way meetings should be actively encouraged and liberal allowances should be made for the expenses of men attending such meetings. The men always bring back ideas and inspirations that result in more efficient work.—*A. M. Burt, assistant director, Division of Operation, U. S. R. A.*

## ROADMASTERS MEETINGS OF GREAT VALUE

By J. B. Martin

Supervisor of Track, New York Central, Elkhart, Ind.

Space would not permit me to enumerate all of the benefits to be derived from attending the annual convention of the Roadmasters' and Maintenance of Way Association. The benefits are so varied and important that it will be sufficient to mention a few of them briefly.

In general the benefits to be derived from attending these conventions depends largely on the individual. If he attends with the purpose of securing knowledge and broadening his outlook, he will not be disappointed.

All important questions, political, social and economic are solved by discussion and deliberation, and the greater the participation in the discussion the more satisfactory is the solution, and this principle holds equally true in the railroad world. The association with its convention provide the medium for this important function.

The Roadmasters' and Maintenance of Way Association is one of the oldest, if not the oldest, railroad organization in America, and its nearly 40 years of existence stands as a monument of progress, and is reflected in the improved standards of American railroads. It now has some 1,200 members, many of whom attend these conventions regularly, and no one can be present for a single session without being impressed with the importance and earnestness of the work. The reports, papers and discussions before the convention cover subjects of timely interest and importance to every maintenance of way man and are of high educational value. They are carefully prepared and presented in a comprehensive manner, and the discussions and comments that are brought forth make attendance at the convention of greater value than a reading of the proceedings in some journal at a later date.

Of more importance and value than all of this is the contact with a large number of men from all parts of the country, engaged in similar work. The exchange of opinions, ideas and experiences is sure to broaden the outlook and start new trains of thought, which will benefit the individual and the railroad to which he devotes his efforts.

It is well said that if we do not progress we go backward; every railroad man is ambitious to progress and see his railroad go forward. Every maintenance man is interested in and is giving much time and thought to raising the standard of his division and railroad. How can this be better done than through the exchange and discussion of ideas and experiences at the convention. The association and the convention are the clearing house for all of the latest and best ideas on maintenance problems and by attendance at the convention, the strongest and best can be selected.

There never was a time when there were so many problems to solve or so much need of sane and sober judgment on American railroads as today; the maintenance man with his experience and close touch with actual con-

ditions is peculiarly fitted to render valuable aid in the solution of these problems, and there is no better medium through which it can be done, than the association and the convention. It is the quickest and best method of gathering and disseminating good ideas and the most effective for killing bad ones.

## NEW IDEAS WE TAKE HOME WITH US

By W. J. McMANAMA

Track Supervisor, Boston & Maine, Waltham, Mass.

The chance to look over new devices and measure progress in the art in which we are interested is the striking feature of the convention. Among the exhibits a railroad officer can always pick out three or four devices that will help him in his work or reduce labor effort. It is not enough to investigate these devices. One should go into cost details, determine the savings that can be effected thereby and draw up a finished report to back up any requests or requisitions. I am of the opinion that in nine cases out of ten this will bring results. Concentration of this sort at the exhibits is most productive of good.

The interchange of ideas with one's associates at the meetings is another valuable part of a convention. It is possible to specialize on the meetings covering the subjects in which one is particularly interested. One can always learn new methods of overcoming old troubles.

The least tangible—but possibly most valuable—part of a convention is the renewed energy and incentive that one brings back to his work.

## OF GREAT VALUE AS AN INSPIRATION

By C. R. KNOWLES

Superintendent of Water Service, Illinois Central, Chicago, Ill.

A convention brings together men who have common aims and interests and through contact with them one is enabled to view the many problems in hand from different angles, thus affording a broader outlook and giving a better opportunity to overcome the difficulties encountered in the daily work. It has been said that a man gets out of the convention what he puts into it. While this is correct, it is also true, and to a greater extent, that he also gets what every other man puts into it. While it naturally follows that the greatest benefits to be derived from any association fall to the man who is most active in association work, yet there is not a member who is not benefited in a greater or lesser degree if he attends the conventions.

Those who do not attend the conventions of railroad associations sometimes fall into the error of thinking that they are designed chiefly for pleasure and recreation. This is far from true as the real object is the advancement of knowledge pertaining to the particular branch of the service represented by the membership, and those in attendance are present for the most part to gain knowledge that will benefit them and the roads they represent.

Attendance at conventions offers opportunities for contact with these men, acknowledged leaders in their profession, and through this contact comes broadened knowledge. There are doubtless many times when one would have considered it a great privilege to be permitted to call together in conference other mn of the same profession for advice and counsel in solving some perplexing problem. The convention offers this opportunity. The man who brings his problems before the convention will get the benefit of the ideas of other men on the subject, at the same time offering ideas that will doubtless be of great benefit to his fellow members. Not only does he widen his acquaintance, broaden his knowledge through discussion of work, and methods and exchange of ideas, but he also gains inspiration from the convention and this perhaps is the most important benefit of all. With most of us the railroad business is our life's work and we like to think that the railroad man is second to none when it comes to intelligence, hard work and the ability to do big things and do them well, but there are times perhaps when we are inclined to grow a trifle sluggish and are in need of inspiration. There is no better way in which this inspiration may be gained than by association with a live, enthusiastic convention of men who are intent on finding methods by which the maximum in the line of human endeavor may be attained.

## SOME SPECIFIC ADVANTAGES DERIVED FROM CONVENTIONS

By F. C. RIEBOLDT

Master Painter, Chicago, Milwaukee & St. Paul, Milwaukee, Wis.

The association with which I am most familiar, the Maintenance of Way Master Painters' Association, does not attempt to establish standards, but affords a means of contact between the master painter, the manufacturer and the paint chemist. Through the help of the association the master painters hear of the new materials that have been developed and what has been learned about the proper methods of application in order to secure the best results. The manufacturers also learn of our difficulties and the limitations under which their materials must be used.

Instead of endeavoring to present a general discussion of the advantages to accrue from attendance at these conventions, I wish to mention briefly a few of the things that I have learned by attending them as a means of illustrating the character of the information to be obtained and demonstrating how ideas, developed through scientific investigation, may be disseminated among the practical workmen.

At one of our conventions a paper was presented on paint ruptures, such as 'alligatoring," spotting, blistering, peeling, powdefing, etc., which showed me that I had an entirely wrong conception of the cause of these conditions and enabled me to correct many practices which I had been following that were tending toward these results. At another time a paper was presented that clearly demonstrated the distinction between pigments that are inhibitive and those which serve best as protective coatings. The discussion at one meeting brought out the fact that glass in railway buildings that are subject to escaping steam should not be glazed with putty, but should be held instead by quarter-round moulding and I can say with satisfaction that I have accomplished some real savings in glass renewals by following this practice.

## ROADS TAKE ACTION TO INCREASE EFFICIENCY

TO RELIEVE the present dire transportation situation in the shortest possible time the Advisory Committee recently created by the railroads has proposed certain standards for the efficient operation of the railways as a whole which, by resolutions unanimously adopted by the executives, they have pledged themselves to make every effort to attain. This is the first time any such action ever was taken by the railways collectively.

The significant feature of the standards set up is that they are higher than any corresponding standards hitherto attained in the actual operation of the railroads of the United States, and are probably higher than ever were attained in the operation of the railroads of any country.

"The first standard is 'An average daily minimum movement of freight cars of not less than 30 miles per day.' The average movement per car per day under gov-

ernment operation in 1918 was 24.6 miles and in 1919 23.1 miles. The greatest average movement ever attained in any year was in 1916, when it was 26.9 miles. If the railways should accomplish what they have set out to do, it would mean practically five miles per car per day more than was made under unified government control in 1918, and would be equivalent to adding four hundred to five hundred thousand cars to the available equipment.

"The second standard set up is 'An average loading of 30 tons per car.' The highest average ever attained was in 1919, when it was 29.1 tons. An increase of one ton in the average load per loaded car would be equivalent to adding from 50,000 to 75,000 to the available car supply.

"The third standard established is 'The reduction of bad order cars to a maximum of 4 per cent of the total owned.' The last report upon the subject showed 7.4 per cent, or about 178,000 of all the freight cars of the United States in bad order. A reduction of this to 4 per cent would increase the useful available supply of cars by about 80,000.

"The fourth and fifth standards set up are 'An early and substantial reduction in the number of locomotives unfit for service' and 'More effective efforts to bring about the return of cars to the owner roads.'

# The Passing of the Hobo

THE HOBO has long been a picturesque character on American railways. His employment has been confined principally to railway construction and heavier maintenance work requiring floating gangs. Held to this activity by the lure of the rail and prevented from rising to positions of responsibility by his fondness for liquor, he has added a distinct touch to the lore of the granger roads. With the passing of liquor his type promises soon to disappear. That marked changes are already being brought about is indicated in the three discussions which follow:

## BOOZE AND THE HOBO

By F. T. Beckett

Engineer Maintenance of Way, Chicago, Rock Island & Pacific, El Reno, Okla.

The hobo is passing. Not long since, "Booze and Boes" were so closely associated that the one stood for the other. In years gone by, little grading or other rail work was done without the hobo; a red handkerchief tied around a suit of underclothes (his wardrobe) and a stout walking stick made up his complete outfit. Many were from good families—well educated and used to the best of surroundings—but booze with its growing appetite separated them from all that might have made them happy and useful.

The "Bo" went north with the warm weather; his coming was heralded as the spring time; and he put in a working season of drudgery and dissipation. Pay day found him with a few dollars coming, which promptly went for drink, never going back to the job until the last cent was gone, his board and wardrobe having been furnished by the boarding boss. He usually kept his promises or obligations, squaring accounts as soon as he could. The first big frost again started him southward, where, as he termed it, "the climate better fits my clothes."

War time prohibition and war time activities changed his program; nothing to drink, work or fight, made him a more positive factor. The war called a halt to much railroad work—i. e., new and heavy renewals. Mr. Hobo sought cantonments, ship yards, etc., and soon became identified with that work, and leaving railroads. Those of the hobo class less adapted to changes stayed with the railroads.

His place in the Middle Southwest was gradually taken by labor from Mexico. We who work them are not sure we are glad the change came. In exceptional cases, as in the yard or quarry, the hobo is still found in considerable numbers, as is true with some of the old-time railroad contractors. He now stays better, demands better food, lodging and clothing, reads, keeps clean, and may have money in the bank—bonds, war savings stamps or post office deposite slips. He also suffers less on account of sickness. The hobo has taken on the spirit of the times, however, and only cares to do just what he is paid for—work as called for in the particular schedule to which he belongs—and generally he is getting away from being the handy workman he once was. He does not roam from place to place with his pack on his back, or ride the rods or the "blind" so much as in the old days, but is more of a "summer boarder" who stays all the year.

The passing of booze has made him stay in one place longer, but has, so far, added little or nothing to his efficiency. The class of labor that has filled his place is no more stable than he—though we seem to see the "new" of the conditions wearing off, and as our country settles again into the stable condition of pre-war times, a better workman coming, less given to roaming and more careful in his work. It is too soon, the change is too great and too sudden, and the time too upset to enable one to draw definite conclusions yet, but at this time we have less use for our jails than when booze and the "Boes" were partners.

## HOBO BECOMING MORE EFFICIENT

By F. E. Crabbs

Roadmaster, Chicago, Milwaukee & St. Paul, Chicago

We had really expected that taking liquor from the hobo would leave him in no condition for work. However, we actually find that the result has been just the reverse. Only a few days ago in an actual test in unloading cinders with a work train I put eight hoboes in one car and 12 good Mexicans in another car, with the result that each gang unloaded five cars in the same time. I asked the foreman and assistant foreman (who are both old-time hobo foremen) how they accounted for the eight hoboes doing the same amount of work as the 12 Mexicans. The foreman expressed his opinion that, while those 12 Mexicans were good workers, his eight hoboes were a "damn sight better" and knew how to take advantage of opportunities. While the assistant foreman said, "take the booze away from them, give them good board, and they are bound to double their working capacity." These men now come to the gangs with a clean-cut look, making no complaint about board and working conditions, and do a good day's work. Their talk is of present day issues and not of the old-time barrel house.

Now that the National Amendment is in effect, the railroads must see the good results. As an inducement to this labor to remain in service, they should provide good cars or camps fitted up properly, with daily papers, books and magazines, as these men have nothing to look at after a day's work but the camp cars and surrounding country.

My idea has always been that the railroads paid dearly

for the hobo drunks from the fact that the average hobo only came out to make a little stake and then go back for another drunk. It usually took three to five days for him to get back on his feet, and when he came back on the job little work was gotten out of him. It meant that we must keep a gang up to 75 men, working 10 hours, while under the national dry amendment 50 men will do more work in 8 hours.

## NATIVE LABOR LITTLE AFFECTED

BY D. B. JOHNSTON

Division Engineer, Pennsylvania System, Louisville, Ky.

On this division our regular track forces are still exclusively native and free from the hobo or foreign elements. While the use of liquor has prevailed to some degree in the past, it has rarely interfered with the work, and no distinct changes have occurred due to the prohibition law. We have noticed a reduction in the labor turnover, which may be due partly to the lack of liquor, but in my mind is brought about by the fact that the relation between the wages paid and the high cost of living is such that the trackmen, most of whom have families, are compelled to keep steadily at work to support them. Their efficiency is lessened to some extent, but this is due to the activities of the unions.

Drawing on my past observation with hobo labor, I believe it is practically a thing of the past. The hobo was affected with a desire to be on the move, and this desire usually came on him when he was under the influence of liquor. Whenever booze cannot be had he will not travel so much and his species will cease to exist.

## PLACING RIGHT-OF-WAY MONUMENTS

BY F. D. YEATON

Assistant Engineer, Chicago, Milwaukee & St. Paul, Chicago

WITH THE increasing value of land, especially railroad right-of-way, more thought should be given to properly marking it. There are many instances where railroads have repurchased land because it was not fenced or properly marked. Law suits over the ownership of land occur not infrequently which could have been avoided if more consideration had been given to placing right-of-way monuments. One of the main objects in placing monuments is for the relocation of the property which may occur after a long period of time. Therefore, good judgment should govern the selection of points for the location of monuments. The following general instructions and layouts may be of value:

1. The engineering department shall set all stakes and supervise the placing of all monuments. Monuments shall be placed in accordance with the stakes set and the standard plan marked "Right of Way Monument." A complete record shall be made of all monuments placed, and all monuments shall be shown on the right-of-way maps.

2. At places where the fence is built on the right-of-way line it will not, in general, be necessary to place monuments. Where the fence is inside of the right of way line, it shall be moved out, if possible, preferably when renewing the fence. At places where the fence cannot be placed on the right-of-way line or where the fence is new and it is not considered advisable to place the fence on the right-of-way line, concrete monuments shall be placed. For this purpose stakes shall be set when requested and at as many places as necessary.

3. Measurements by tape shall be made to the nearest one hundredth of a foot and by transit to minutes. No computing shall be done, if it can be avoided. Each point shall be actually measured, and while still on the ground the measurements shall be checked for possible errors. Wherever monuments are to be placed within city or village limits recorded plats shall be checked carefully to see that the right-of-way lines check the surveys of the city or village plats. At places where a stream crosses and recrosses the right-of-way line monuments shall, if possible, be placed on the track side of the stream and at points that will give the greatest permanence.

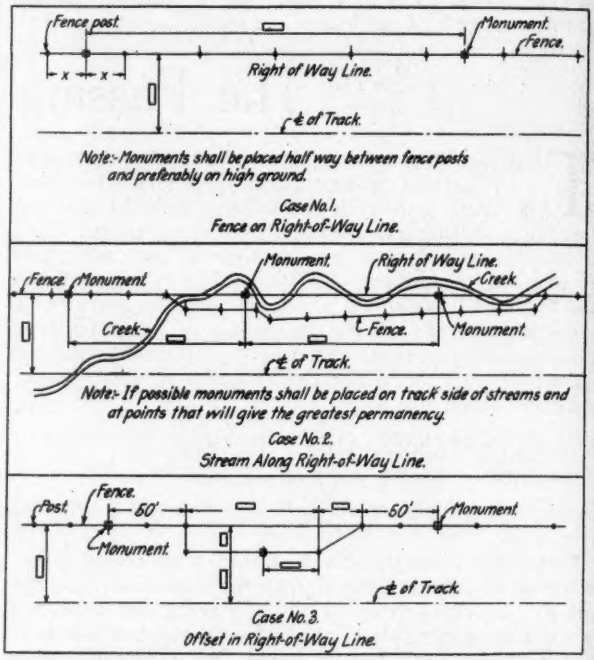


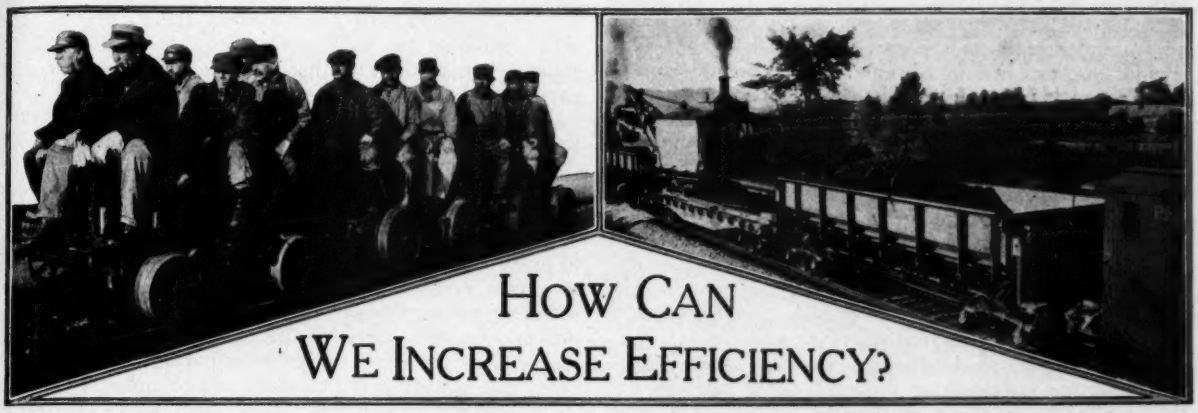

**Chart Showing Proper Method of Locating Monuments Under Varying Conditions**

4. A stake shall be set, flush with the top of ground, marking the point on the right-of-way line where each monument is to be set. Four temporary stakes shall be set around this stake several feet from it and in such a way that a line stretched from opposite stakes will pass over the tack in the head of the stake. The tacks shall be carefully set in the tops of these temporary stakes in such positions that a stretching line running from the tack in one stake to the tack on the other stake will pass exactly over the tack on the original stake. The original stake shall then be removed and the hole dug for the monument.

5. Care shall be taken not to dig the hole for the monument any deeper than is necessary to set the monument on firm earth. When the hole has been dug to the proper depth, the monument shall be placed in it in such manner that it will be plumb. The back-fill around the monument shall be placed with care, the material shall be properly rammed as the filling proceeds, and the monument kept in such a position that the drill-hole in the top of it shall be exactly under the intersection of the strings.

---

NEW YORK STATE'S FIRST TRAIN.—The De Witt Clinton, the first locomotive to run in the state of New York, and now familiar to most people because of its exhibition at the Chicago World's Fair and other places, has been installed in the east gallery of the Grand Central Terminal, New York City, where it is in full view of the thousands of passengers.



# How Can We Increase Efficiency?

THE PROBLEM OF increasing the output of maintenance of way forces is ever important, but it has never been more vital to the welfare of the railways than during the present season of labor scarcity, inefficiency, and high costs. The following discussions of methods of improving the performance of maintenance of way forces are therefore particularly timely. These papers constitute the second series received in the contest on "Means of Restoring the Efficiency of Maintenance of Way Forces," the two prize winning and four other papers having been published in the July issue, page 269. The third series will be published in a later issue.

## KEEP THE MEN CONTENTED

By F. M. Siefer

Division Engineer, Southern Pacific, Sacramento, Cal.

The problem of securing sufficient men to properly maintain our roadbeds and do other maintenance work necessary is and has been a serious one for some time past, and every effort should be put forth to secure a class of labor that will be satisfied with working conditions, and that the railroads can keep satisfied after entering the service. While it is true that men are hard to secure for work of this character on account of the many other opportunites in the labor market, it is also a fact that a large percentage of the men newly employed stay but a short time and then drift into other lines of work. It therefore behooves everyone working in a supervisory capacity on the railroads to always keep in mind the endeavor to make working conditions for the men so attractive that they will be satisfied and contented at all times. If this thought was always uppermost in the minds of our foremen and others working in a supervisory capacity, we would make rapid strides in relieving the labor shortage on the railroads.

All officers who have anything to do with the employment of laborers for section gangs will undoubtedly agree with the statement that the labor shortage would be greatly relieved if we could keep the men that it has frequently taken strenuous efforts to secure for railroad work. Unfortunately, we cannot always do this, and it is often the case that 25 to 50, or even more. men are hired to fill our requirements at a certain point where we probably only actually require 8 or 10 men to maintain the gang regularly. This heavy loss of labor which has been recruited—frequently at heavy expense and by earnest efforts on the part of labor agents and "scouts" sent out in various directions to secure these men—must be reduced, if possible, and effort should be made in every direction to bring about this desired result.

There are many ways that this result can be brought about. In the first place, no promises should be made to men who are employed which cannot be fulfilled. Care should be taken to see that the foremen whom the men are assigned to work under are fully advised as to just exactly what information has been given to the men, so that when they go to work they will receive exactly the same fair treatment and be provided with every accommodation which has been promised them to induce them to enter the service. If the men are contented and find that they are being treated exactly as has been represented to them, we can then expect to keep the new material which has been recruited.

Foremen who supervise work should adopt the plan that it is far better to lead their men in handling the work assigned to them than to attempt to get results by assuming a domineering attitude. The methods used by foremen in the early days of railroading, where it was often thought to be necessary to drive and abuse the men under their charge, cannot be employed for a moment in the present generation, and if any foreman does attempt such tactics it will soon be found that the men will leave and seek other work. On the contrary, all men acting in a supervisory capacity should endeavor to direct their men—especially the new men in the gang. Particular pains should be taken to instruct them fully in the class of work they happen to be engaged in. They should remember that they had to learn once themselves, and men should not be found fault with because they do not do everything just right when they first start work in a new capacity. It goes without saying that when a new man finds that his foreman is patient with him and is trying to give him proper instruction he will become interested in his work and will develop into a faithful and useful employee.

This same rule should apply all along the line, and a word of commendation should always be said when the employee is showing improvement and increased ability. Furthermore, the good work of foremen who are in charge of men should be recognized by their immediate superior officers and officers generally. Let the man know that his work is just as important in the successful operation of the railroad as the man who runs a locomotive, who acts as agent at a station, or, in fact, fills any other responsible position. A few words of praise when a man is doing good work are bound to be appreciated and will spur the man to continue his efforts to merit further commendation.

The adoption and use of labor-saving devices is another factor in keeping men satisfied and contented. Section motor cars should be furnished to replace handcars wherever possible for the men to go to and from their work. The men are then fresh to start work when they arrive on the job and they do not have the task of pumping a hand-car in going home to headquarters at

night. It has been found from actual experience that a railroad can keep men more readily on sections which are provided with motor cars. Portable wood saws should be furnished to be moved over the division to keep the men properly supplied with fuel. The use of chemicals each year to destroy the weeds along the right of way will also save a great deal of labor digging out these weeds, which labor can be utilized to better advantage. Ditching machines should be used to clean ditches. Rail-laying machines should be used wherever possible. Portable air hoist rail loaders should be used on supply trains to lighten the labor of loading and unloading material for the various gangs. Track tie tampers and various other labor-saving devices which have come into use should be put in service wherever possible.

Another thing which should always be given consideration is the provision of proper housing facilities for the men. This is the home of the laboring man when not at work, and if it is comfortable he will be more contented and not want to change to some other location. Wherever possible provide boarding camps with a good and plentiful supply of wholesome food. Provide shower baths wherever possible and also see that adequate toilet facilities are furnished. Also see that a good supply of drinking water is always provided, and sufficient ice is sent to the gangs regularly each day during the hot weather. This is a small matter, but if for any reason the ice shipments to a gang are irregular, and the men are without cool water for a day or so at a time, it will be found that they will leave and seek other employment where their comfort will be given proper consideration. Separate and distinct facilities should be provided at places where men are employed who have families.

The principal thing to do is to keep a man satisfied and contented. Get him interested in his work and encourage him to assume greater responsibilities. He will then be in such a frame of mind that he will know that his employer is interested not only in his own personal welfare, but in the welfare of his family also, if he happens to be a married man.

In conclusion, after the whole situation has been sifted down there is but one essential point, and that is to get the man fully satisfied with conditions that he is constantly confronted with, viz.: railroad work generally, and proper living conditions.

## MORE SUPERVISION AND LABOR-SAVING MATERIALS NEEDED

BY JOHN EVANS

Division Engineer, Michigan Central, Detroit, Mich.

At the present time, in many, if not in most localities, maintenance forces are weak in numbers and of poor quality. There does not seem to be any immediate prospect of an improvement in this condition. It is accounted for by dissatisfaction over wages in the past. The present wage rates are not attractive and there does not seem to be much prospect that they will be adjusted in such a way as to be generally satisfactory. Therefore, any suggestions as to improving the handling of maintenance work should be such that they will produce results in spite of insufficient and inferior forces. As suggestions of this nature may be mentioned more and better supervision; the use of more durable materials or appliances which will reduce the frequency with which certain of the larger operations in maintenance have to be repeated; the use of labor-saving machinery and methods, and increased attention to the early ordering and expeditious distribution of materials.

In attempting to increase and improve supervision, we are confronted with the fact that there is an increasingly serious shortage of good foremen. This is partly the result of the shortage of good laborers, there being no material available for making foremen. It is also due to some extent to the fact that foremen, often capable and experienced men, are being induced to leave railroad service for other employment where wages or working conditions, or both, are more attractive. On account of this condition it appears that improvement in the supervisory forces will have to be looked for largely from those occupying positions above the rank of foreman.

Roadmasters and supervisors and their assistants are in many cases trying to do justice to a territory which is too large, considering present day conditions. With insufficient forces it is particularly important that the various maintenance operations be handled in the right way and at the right time. It is also important that small repairs and adjustments be taken care of promptly where such attention will prevent an accident with consequent damage to track, or will ward off the need for some extensive repair work in the near future. Among the men now available for foremen there is apt to be a tendency to fail to appreciate the need for attention to small defects. There is also apt to be, on account of not making or carrying out a proper program of work, a failure to get the most good out of the insufficient help available.

The increased amount of assistance and instruction which the foremen need from their superiors makes it advisable in many cases to reduce the roadmasters' or supervisors' territory. In addition to the benefits to be obtained from the immediate increase in supervisory force, the increase in the number of roadmasters' positions will provide more prospects for promotion for ambitious foremen. Fortunately, roadmasters, supervisors and their assistants can be appointed solely on considerations of fitness without compulsory application of any seniority rules.

The roadmaster should be relieved in so far as is possible from clerical work. At handling track work he can give satisfactory return for the wages paid him. As a rule, he has not been trained to handle clerical work and such work when done by him is apt to be of indifferent quality and very expensive, considering the wages paid him for the time spent doing it. When there is any considerable amount of construction work to be done its supervision should be provided, apart from the supervision of maintenance, otherwise the construction work is apt to be given preferred attention and the maintenance neglected.

As examples of more durable materials the use of which might be made more general one might mention treated ties, substitutes for wood in fence posts and signs, and the more extended use of manganese in frogs, switches and crossings. The prompt application of rail anchors to newly-spaced track and the use of tie plates on newly-installed ties are examples of measures which should be taken to reduce the frequency with which maintenance operations have to be repeated.

In the use of machinery in maintenance work, careful supervision is especially important. Such use is still in most cases in the nature of a trial and on account of the urgent need for satisfactory machinery in this field, it is apparent that such trial should be conducted fairly. Foremen are apt to be prejudiced in favor of old methods of doing work. On account of such prejudice, their reports on the work, done by the devices on trial, are apt not to be accurate. The foreman's indisposition to use them, or the failure to promptly take care of some small repairs has frequently resulted in machines being allowed to remain unused for long periods.

In placing orders for material, the fact should be recognized that the time required for filling them is continu-

ally increasing. On account of difficulties in getting orders filled in anything approaching a reasonable time, shortages at the railroad storehouses are more frequent. Even after the material has been turned out by the factories, there is very serious delay in getting it moved to the storehouse and from the storehouse to the point where it is to be used. This condition calls for a more accurate and earlier anticipation of needs for materials and the placing of requisitions accordingly. In moving small quantities of material short distances, the use of a team or truck will often be found cheaper and almost always more expeditious than shipment by railroad car.

## REMOVE WAGE INEQUALITIES AND ESTABLISH GRADUATED RATES OF PAY

BY F. J. MEYER
Asst. Eng., New York, Ontario & Western, Walton, N. Y.

The restoring of efficiency in the maintenance of way department presents many difficult problems to those responsible for the maintenance and operation of the railways. Much of the inefficiency in the maintenance of way department is merely typical of conditions in other branches of railway service and as such is not a question for maintenance of way men alone.

Inefficiency in the maintenance of way department may be generally credited to a shortage of labor, machines and material. It is also due to poor organization, lowered morale and insufficient supervision. The war is probably the greatest cause for the labor shortage, not only on account of the actual destruction of men and material, but because it brought a very sudden change in our whole industrial life. For instance, the shortening of the work day. Are we prepared to produce what we need in eight hours? It is certain that man will work at least long enough to produce the necessities and in the end most men will work long enough to procure some luxuries; this in spite of legislation or trades union rules. It is noticeable even now that many advocates of an eight-hour day use a good share of the rest of the 24 hours in some other line of endeavor, such as farming, storekeeping, peddling and other ways of increasing their wealth.

The labor shortage has worked a greater hardship for the maintenance department than for many industries because the work in the maintenance department is heavy, hard work, requiring a combination of brains, brawn and patience for which many men are not fitted. Moreover, with the selling price of transportation fixed and the selling price of commodities not fixed, it is a comparatively simple matter for the unrestricted employer to outbid the railways in the labor market. The employer who pays large wages and provides various sorts of entertainment for his employees and is free to raise the price of his product to meet his increased costs is in a much better position to secure labor than a railroad with its widely scattered organization, rather irregular employment, lack of proper surroundings at outlying stations and comparatively poor living quarters in most places.

The lack of machinery in the maintenance department seems to be due not only to the railroads' lack of funds, but to the cheapness of labor in past years and the failure to appreciate that a railway track complete is a big modern plant and that the work on it is labor for skilled workers. However, it is folly to expect that a few intelligent skilled workers, well directed, with even the modern equipment now on the market, such as ditchers, cranes, tie tampers, rail layers, welding outfits, treating plants, dump cars, etc., will accomplish more than a host of unskilled workers.

It matters not what has caused the material shortage. It exists and does greatly hamper maintenance operations. It also suggests the more general use of what might be termed permanent materials, especially in the elimination of timber where advisable, and the treatment of all timber used.

Poor organization, lowered morale and insufficient supervision are so closely allied that they may be considered together. The lowered morale in the maintenance department is partly the result of the constant turnover of maintenance labor and with it the introduction of new men not animated by the traditions of the department. It is also due to the marked inequalities in the wage awards made under General Order 27 and the various supplements. Consider for a moment the section foreman and the floating gang foreman. Prior to the issuance of the wage orders a certain section foreman received $75 per month. His gang consisted of 10 men and his section of 5 miles of double track. Today he receives $100 per month, or approximately 48 cents per hour. On the same territory a signal maintainer was raised from $75 per month to 68 cents per hour. Both men received an increase, the only difference being that the signal maintainer was advanced 20 cents more per hour than the section foreman. The same differences in the advances obtain between car men and track foremen. There is no need of comparing the worth of these classes of men. Fifty years of railroad experience in arriving at the differences in wages which should be made for the various classes of work were brushed aside in the twinkling of an eye by the wage orders. The irony of the case is so apparent when it is recalled that all were agreed that section men were underpaid compared with other classes of railroad workers prior to the general wage orders. Little wonder that the section men flocked to the labor organizations. Moreover, during the period of federal control the men were encouraged to organize. What the result will be no one knows. If the organizations are intelligently directed and realize that they can only help themselves by increasing output they will be a benefit to the department. Probably labor organizations in general are economic burdens to the country, but they have become part of our national life and will probably continue as such until employer and employee alike meet on the common ground of equity and justice.

An analysis of the entire subject seems to offer but one solution aside from the immediate need of increasing the wages of maintenance of way men and that is to reorganize the maintenance department so that intelligent young men will enter it because the work is attractive and because they will receive promotion if deserving. In a general way the writer is of the opinion that rates of pay for maintenance workers should be graded. Experience seems to teach that regardless of a worker's occupation he becomes more or less expert with added practice. The worker is aware of this and after several years' training feels a chill when a new man is hired at the same rate of pay he receives. Graduated rates of pay would naturally lead to the introduction of more labor-saving machinery. With the introduction of more machinery the required force would become more nearly equal the year round. This would create the desired permanent organization.

To build up an efficient force of workers it will also be necessary to take a big step forward in the matter of living quarters. At permanent headquarters it will probably be necessary to build or assist the worker to build a modern home which will compare favorably with what the worker finds in factory towns. In camps and cars the need of proper entertainment such as maintenance workers require should be provided and probably if tact is used night schools could be introduced.

With a good grade of men who hang to the job because they like it and because they and their families like their

surroundings the foundation for restoring efficiency is laid. On this foundation supervision automatically improves not only because there are better forces to direct, but because material for advancement is constantly being developed. Therein lies the keynote of efficiency.

## PERMANENT EMPLOYMENT IMPORTANT

R. A. EASLEY
Track Supervisor, Nashville, Chattanooga & St. Louis, Fayetteville, Tenn.

In the agricultural districts of the South the farmers employ labor by the year, making contracts at or before the first of each year for the year's labor supply. If the railroads of this territory could arrange to use about the same number of section men throughout the year so that we could promise men regular work, this would go a long way toward the efficiency of track labor, so far as the South is concerned. I have learned from experience that when we are in position to promise men regular work we not only can get more men, but can get good men as well. We also find it much easier to hold good section men where it can be arranged to furnish them good houses and fuel for winter use, also ground for gardens, etc., all of which is furnished on farms.

## CREATION OF AN ESPRIT DE CORPS

BY H. B. HOYT
Superintendent Timber Preserving Plant, Buffalo, Rochester & Pittsburgh, Bradford, Pa.

It would seem that a railroad should make every effort to overcome the enormous turnover of labor, particularly noticeable during the past few years. This turnover means a constant force of inexperienced men, a constant change of workers, and a force of laborers whose habits and short length of service have never developed that loyalty and ability so necessary for efficiency.

Lets make the railroad so that men will want to work for it, so men will value their positions, and will want to stay. Make it so that it becomes part of their happiness, part of their life, so that they have that "we" feeling, so that it becomes "our" railroad, and not a mere necessary detail for the purpose of providing a livelihood. How can this be done? First, make the railroad a real competitor with other industries for the services of good men. Make it desirable and an honor to work not just "on" the railroad, but "for" the railroad. Then, make the compensation for equal services rendered, equal or above that for similar work in other lines of business. Let the advantages on the road be attractive. Life insurance carried for the employees as a reward for faithful service will appeal strongly to the better class of men, particularly to men with homes or families. Pensions are now provided on many roads; this is excellent and some inducement for long service, but does little to interest young men. Something less remote will appeal more.

A man's family is his first consideration. In many cases it would be possible to aid the employees, in these high cost of living times, for a railroad to provide at cost, some of the commoner necessities of life, such as food, fuel and perhaps clothing. Some of the suggestions may seem revolutionary. Why should they? The automobile industry, large mercantile establishments, the manufacturing interests do not think so. It has been a success with them; why not on the railroad? Is the railroad business of less importance?

The railroads and railroad work are a constant fascination. Everyone likes to see the cars go by, to hear the sounds of the distant trains, to see the "Limited" pull into the station. This natural fascination grows with service and gives a foundation upon which to build up loyalty and ability, thereby promoting efficiency. Lets add to this foundation a structure of advantages, compensation and appreciation, to attract good workers. Good workers enjoy doing good work, seeing good track, clean equipment, fine grounds and well-kept buildings; they are honored to have had their part in it all. They are, in fact, the best judges of their own work. They welcome appreciation, and profit by criticism, both of which wisely given will increase loyalty, ability and efficiency. Let each man feel his own personality and be treated as a man and not as a small cog in a big machine. Efficiency consists in using each minute of time, each particle of material, and each opportunity for the best interest of the company. All of this depends almost entirely on the attitude of the man. Let's get the attitude *right*. When we do, efficiency will be at hand and when the "big boss" waves his "high sign" from the rear of his special, the mutual meaning will be the same as if the hands were clasped, and the words spoken, "Well done."

## GANG ORGANIZATION PROMOTES EFFICIENCY

BY J. W. POWERS
Supervisor of Track, New York Central, Rochester, N. Y.

The success of a department depends upon proper organization, with systematic methods and with definite ideas of how the work should be carried on to secure the best results possible with the least amount of labor. The work of a properly organized gang is not only done faster, but better. The men are more contented and take more pride in their work when their efforts are well directed, for they soon realize that they are making better progress with no more exertion on their part than if they were permitted to work unsystematically.

Co-operation is also of vital importance in a properly organized gang, for it is one of the fundamental principles of organization. To secure proper co-operation those who are given charge of men should be good judges of human nature; they should be fair-minded and tolerant and should treat their men properly in order to secure their respect and confidence; they should be energetic and resourceful; in fact, they should possess all the attributes of a true diplomat.

In order to secure good men we must offer them sufficient inducements to enter the service, namely, wages, opportunities for advancement, transportation, and if they are compelled to be away from home, agreeable living accommodations. It is a mistake to crowd too many men in a car or camp, because under such conditions it is impossible to keep the quarters sanitary. Food is another important item to be taken into consideration. It has been said that the nearest way to a man's heart is through his stomach. Therefore, particular attention should be paid to the quality and quantity of the food given to the men, as well as to the way in which it is prepared and served. The majority of men, if treated as human beings, will appreciate such treatment and will respond in the proper spirit. Of course, it is impossible to satisfy some men, no matter how well they are treated. When there is a scarcity of labor these men necessarily have to be tolerated, but it is a fact to be deplored, as the retention of such men results in a great loss of efficiency and economy.

It is important at all times, but particularly now, when there is such a scarcity of labor, to conserve human energy whenever possible and economical. Perhaps there is no better way of doing so than by a more general adoption of labor-saving devices. The pneumatic tie tamping machine can be used for other purposes as well as tamping ties. Steam ditchers can be used for many different kinds of work, such as loading and unloading

coal and cinders, and sand, stripping gravel pits, driving piles, excavating, loading and unloading rails, timbers and other material. The use of properly constructed air dump or side dump cars without air will promote efficiency and economy. A modern spreader with ditching and bank building adjustments; a ballast plow that will remove all of the ballast down to the top of the ties when necessary with adjustable extension wings to spread the ballast beyond the rail when required; and low flat cars will effect a great saving in many kinds of work. Cinders are now loaded at large terminals by the motive power department with a clamshell, but it still remains for the maintenance of way men to unload them out on the line from old condemned coal cars, which it is impossible to dump, particularly in winter.

Since it is a self-evident fact that the efficiency of the maintenance of way department depends to a very great extent on the men employed, it behooves us to offer sufficient inducements to attract ambitious and capable young men.

## FIRM TREATMENT WILL DEVELOP SPIRIT OF FAIR PLAY

By H. C. Swartz

Supt. of Bridges and Buildings, Grand Trunk, Montreal, Que.

I have found that men, as a rule, are very responsive to kind treatment and equally repellent to roughness and unkind treatment. The foreman who is boisterous and profane may think he is pushing things along, but in the end he usually falls below the fellow who studies the situation quietly and proceeds to plan his work with firmness and without ostentation. There is a great deal more in handling men on the part of our subordinate officers than the superior officers usually give credit for.

To overcome the prevalent lowered morale, I suggest firmness with prudence on the part of our subordinate officers, clean and wholesome boarding outfits, with as many comforts as it is within reason to provide, and a constant effort to impress upon our men the great need of loyalty and square dealing on their part. I believe that if the men would think over the situation seriously and get into a frame of mind where they would be willing to become reconciled to the return of the 10-hour day at straight pay we would soon get back to normal conditions. In the meantime we must provide our forces with all the labor-saving equipment that our means will allow, consistent with the work in hand.

## A PLEA FOR THE TEN HOUR DAY

By S. B. Peter

Roadmaster, St. Louis-San Francisco, Pittsburg, Kan.

Men in this department have been expecting a readjustment of wages for several months, and, failing to secure the expected raise, many of the best laborers are now seeking employment at other work. Prevailing wages in other employment in this part of the country are about 100 per cent higher than section wages, which makes it next to impossible to secure efficient labor for maintenance work. The men are dissatisfied, and it is impossible to get the best results where the men are not caring very much whether they stay on the job or not.

We are working on an eight-hour basis, and I am of the opinion that much better results could be secured by going back to 10 hours, which, under the present working agreement, would give the men two hours per day at the overtime rate, amounting to an increase of $1.02 per day for the two hours' additional work. This increase would make the job much more desirable, get away from the dissatisfaction that now exists among the men, and would, I think, raise the morale of the present men to a large extent.

Another thing that should be considered is that where gangs are working on an 8-hr. basis they use the same amount of time going to and returning from work as when on a 10-hr. basis. Assuming that one hour on an average is consumed going to and returning from work, this amounts to 12½ per cent of the working time for an 8-hr. day, and only 10 per cent for 10-hr. day. As the gang would work 9 hr. when on 10-hr. basis, and only 7 hr. when on 8-hr. basis, the extra 2 hr. would enable the gang to accomplish about 29 per cent more work in the 10-hr. day then in the 8-hr. day.

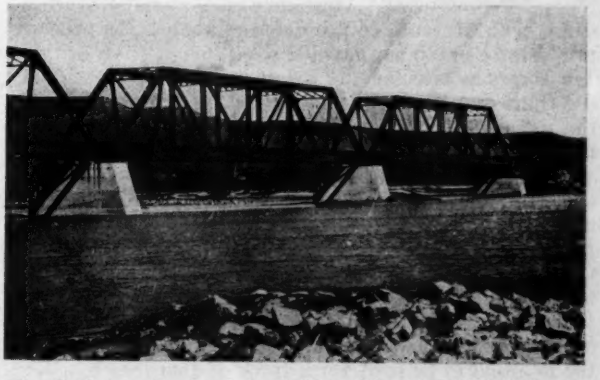
The fact must be conceded that the dollar per day increase in pay would be an incentive to greater effort on the part of the laborer as well as the foreman, and it is only fair to assume that there would be a very decided increase in the efficiency of the men, and that the increased amount of work secured per dollar spent would make a saving for the railroads instead of an added expense.

## AN UNUSUAL CASE OF SETTLEMENT

THE UNDERMINING of bridge piers and abutments is unfortunately of too common occurrence to excite more than passing notice on the part of anyone not directly responsible for the maintenance of the damaged

**View During the Flood. The Pier in the Foreground Has Settled Six Feet**

structure. However, an instance of settlement took place recently in the course of high water which led to such an unusual result that its authenticity would be seriously doubted was not some tangible evidence available in the form of photographs. A concrete pier supporting the



**The Bridge as Restored to Traffic. The Pier Which Settled Is Seen at the Right with the Spans Raised on Blocking**

adjoining ends of a 75-ft. deck girder span and a 162-ft. through truss span carrying a single track settled almost exactly six feet vertically, with practically no displacement or inclination laterally or longitudinally. As shown in the first photograph, this had no effect on the superstructure other than to let down the ends of the adjoining spans by the amount of the settlement, while the second photograph shows how the bridge was restored to traffic by blocking up these spans on the pier. This blocking was accomplished with nine courses of 8-in. by 12-in. ties laid flatwise, one cobble each being placed under the two truss bearings, the two end bearings for the end stringers of the truss span and the two girder bearings. The top of the pier remained so nearly level that the work of blocking up entailed no difficulty whatever.

It is difficult to understand how the foundation could have been scoured out so as to cause a settlement of six feet without some appreciable departure from the vertical. The construction records for this pier reported shale foundation, but no data are available as to the thickness of this shale stratum. The most plausible explanation offered for this peculiar occurrence is that the shale may be in the nature of a relatively thin ledge and that the floodwater caused some understratum of sand or gravel to be washed out, leaving the shale ledge unsupported. This apparently continued to carry the pier until very nearly all of the sand had been carried away, when it failed suddenly, dropping the pier to the new bed.

# A Short Cut in Estimating Track Materials*

BY H. M. BOOTH, JR.,
Assistant Division Engineer, St. Louis-San Francisco, Fort Smith, Ark.

CONFORMANCE to present day standards in making detailed estimates, each divided into its respective I. C. C. accounts, frequently requires a large part of the time of a railway engineering office force for this purpose alone. In most offices a large percentage of these estimates are for industrial track layouts and sidings.

It is now considerably more of a laborious task to prepare estimates in line with the rulings laid down by the Interstate Commerce Commission and the special orders issued by the director general of the railroads than it was several years ago, when usually two sheets on any one project would cover it. For instance, an estimate for an industrial track layout conforming to General Order No. 15, where the proposed track is to extend beyond the right of way of the railroad company, requires three separate sheets, divided between (1) the first 140 ft. or 150 ft. of track from the head block to the clearance point to be paid for and owned by the company; (2) the next length of track from the clearance point to where the proposed center line of the track intersects the right of way line, to be paid for by the industry and owned by the railroad and (3) the balance of the track off the right of way to be paid for and owned by the industry. The engineer in this case is required to make practically three complete estimates for each section of track for the tie, rail and ballast accounts, etc. He is required to figure separate quantities for each sheet of the estimate, making just three times the work necessary if the track was estimated for its total length at one time.

The writer is in the office of the district engineer of a 2,000-mile district, lying in a fast developing oil country in the Southwest. This office is continually overburdened with the work of preparing estimates. In order to produce the maximum number of estimates a day with as few errors as possible, the writer has devised an estimating chart that has greatly facilitated the work of figuring the amounts of materials that enter in the construction of industrial tracks and sidings.

This estimating chart consists of a series of concentric circular scales, of which the graduations represent the quantities of material noted on them. These scales are so graduated that the corresponding values of the quantities which enter into the construction of a track of a certain length are along the same radius, i. e., any line drawn from the center to the desired length of track indicated on the outer circle will show the corresponding values of the material to be used for a track of that length. Very satisfactory results may be had from this chart by mounting it carefully and smoothly on a heavy piece of cardboard, and punching a small hole at the intersection of the radial lines near the center, through which a fine black thread can be drawn to define the radial line. For example, by stretching the thread from the center to the 500-ft. mark on the outer circle, the number of track ties to be used is given on the second circle as 267; next, the number of long tons of rail required for a track of a certain weight of rail; the number of cubic yards of ballast required for a 6-in. raise, 187 cu. yd.; the number of kegs of cut spikes required, 3.14 kegs; the number of pairs of angle bars required, 33 pr., and the number of kegs of track bolts, 0.79 kegs.

In the design of this chart no attempt was made to include every possible kind of a track estimate. It is solely for the purpose of estimating industrial tracks and sidings which are most generally met with, where the construction is not of a heavy type, but is ample for all classes of power, with the exception of the very heaviest. The quantities are so arranged that they are common to practically all railroads. It is assumed that nothing heavier than a 90-lb. rail will be used in a track of this nature. Thirty-foot rail lengths were used throughout on the assumption that a sufficient number of rails of shorter length will be used in the track to offset the few 33-ft. rails that might be used.

The chart is based on the following principles and is arranged in the general order the I. C. C. accounts.

*Ties*—Ties are shown as the number required per foot of track figured on a basis of 16 to a 30-ft. panel of track. In arriving at the number of ties to be used in a track of a certain length it is of course necessary first to deduct the number of feet of track taken up by the switch ties, as, for example, 108 ft. for a No. 10 turnout.

*Rail*—The quantities of rail required are shown in gross tons and tenths of tons per foot of track (both rails). Proper deduction should be made for the length of track taken up by the switch points.

*Ballast*—Ballast is shown in cubic yards per foot of track for 6 in. under the tie. The Frisco standard ballast section, which allows 37.3 cu. yd. per 100 ft. of track was used for chat, sand, cinders or river gravel.

*Spikes*—Spikes are shown in kegs and tenths of kegs of 200 lb. each for each foot of track, figured at four spikes to the tie and 16 ties per 30-ft. panel of track, 340 spikes to the keg of 200 lb.

*Angle Bars*—Angle bars are shown in pairs per foot of track for rails of 30-ft. lengths. Five additional pairs of angle bars should be added for each switch, as well as additional bolts and spikes.

*Bolts*—Bolts are shown in kegs and tenths of kegs of 200 lb. each per foot of track, figured for angle bars with four holes and rails of 30-ft. lengths. For estimating purposes a size of ⅞ in. by 4 in. was selected, which can be used for all rail sections from 56 lb. to 70 lb.

*Copyright by H. M. Booth, Jr.

### Cross Ties.

Per ft. of track figured for 16 ties per 30 ft. panel of track.
Deduct 108 ft. for each No. 10 switch for switch ties.
Deduct 89 ft. for each No. 8 switch for switch ties.

| Weight of Ties. | No. 10 Sw. W.O. | No. 8 Sw. W.O. | Pine | W.O. | Treated. |
|---|---|---|---|---|---|
| | 21,873# 10.94 tons. | 18,337# 9.17 tons. | 150# | 180# | 150# |

### Ballast.

Cu. yd. per ft. of track for 6 in. of chat, cinders, sand or river gravel under tie.
Frisco standard section. Figure for switch same as other track.

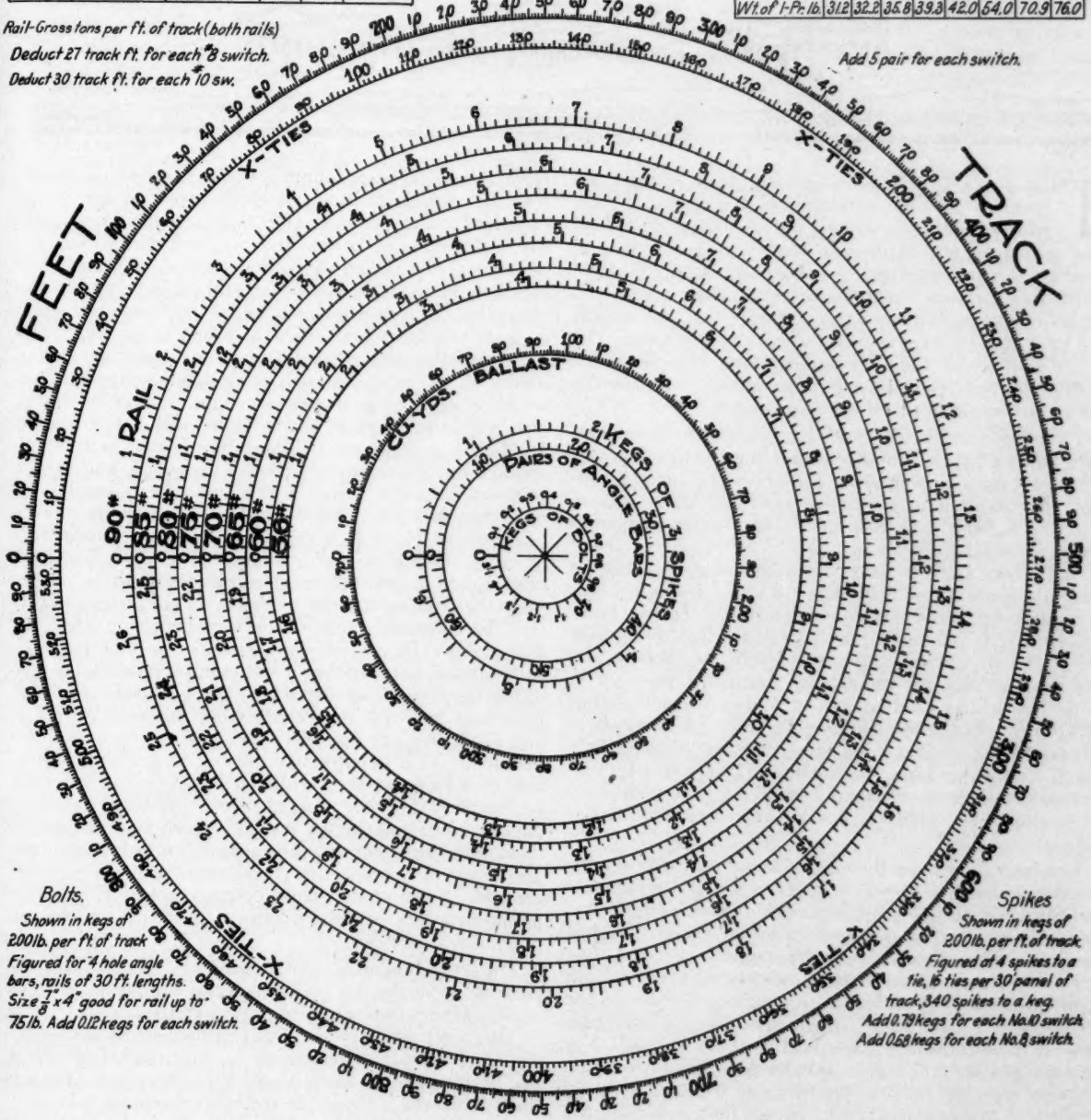
| Weight per cu. yd. | Chat. | Cinders | Sand | River Gravel. |
|---|---|---|---|---|
| | 2600 | 1215 | 2450 | 2700 |

### Angle Bars.

| Wt. of Rail. | 56# | 60# | 65# | 70# | 75# | 85# | 90# | |
|---|---|---|---|---|---|---|---|---|
| Wt. of 1-Pr. lb. | 31.2 | 32.2 | 35.8 | 39.3 | 42.0 | 54.0 | 70.9 | 76.0 |

Rail-Gross tons per ft. of track (both rails)
Deduct 27 track ft. for each #8 switch.
Deduct 30 track ft. for each #10 sw.

Add 5 pair for each switch.




### Bolts.

Shown in kegs of 200 lb. per ft. of track
Figured for 4 hole angle bars, rails of 30 ft. lengths.
Size 7/8" x 4" good for rail up to 75 lb. Add 0.12 kegs for each switch.

### Spikes

Shown in kegs of 200 lb. per ft. of track.
Figured at 4 spikes to a tie, 16 ties per 30 panel of track, 340 spikes to a keg.
Add 0.79 kegs for each No. 10 switch.
Add 0.68 kegs for each No. 8 switch.

## TABLE TO BE USED IN CONNECTION WITH TRACK CHART FOR TRACKS LONGER THAN 1000 FT.

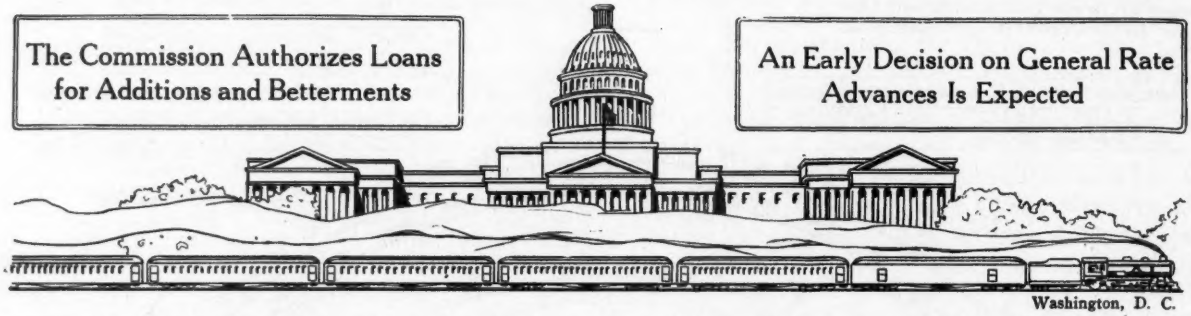
| LENGTH FEET | No. TIES | RAIL Gr. Tons 90# | 85# | 80# | 75# | 70# | 65# | 60# | 56# | Cu. Yds. BALLAST | No. Pr. BARS | KEGS BOLTS | KEGS SPIKES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1000 | 533 | 26.79 | 25.50 | 23.81 | 22.32 | 20.83 | 19.35 | 17.86 | 16.67 | 573 | 66.7 | 1.58 | 6.27 |
| 2000 | 1067 | 53.57 | 50.60 | 47.62 | 44.64 | 41.67 | 38.69 | 35.71 | 33.34 | 747 | 133.3 | 3.16 | 12.55 |
| 3000 | 1600 | 80.36 | 75.89 | 71.43 | 66.96 | 62.50 | 58.04 | 53.57 | 50.00 | 1120 | 200.0 | 4.74 | 18.82 |
| 4000 | 2133 | 107.14 | 101.19 | 95.24 | 89.29 | 83.33 | 77.38 | 71.43 | 66.67 | 1493 | 266.7 | 6.32 | 25.10 |
| 5000 | 2667 | 133.93 | 126.49 | 119.05 | 111.61 | 104.17 | 96.73 | 89.29 | 83.33 | 1867 | 3333 | 7.90 | 31.37 |
| 10000 | 5333 | 267.86 | 252.98 | 238.10 | 223.22 | 208.34 | 193.46 | 178.58 | 166.67 | 3733 | 666.7 | 15.79 | 62.74 |

THE ESTIMATING CHART AND AUXILIARY TABLES

# SETTLEMENTS WITH RAILROAD ADMINISTRATION

**The Commission Authorizes Loans for Additions and Betterments**

**An Early Decision on General Rate Advances Is Expected**



Washington, D. C.

THE RAILROAD Administration has recently announced its first settlement with a railroad company of all claims arising out of federal operation. The settlement was made with the Spokane, Portland & Seattle. The government is to pay $1,600,000 in cash, which was the sum remaining after the balancing of the claims of the railway company against the government and of the government against the railway company. The larger portion of the sum agreed upon represents the payment of compensation due to the railway company for the use of its property by the government.

Twenty-two railroads and transportation companies have now filed their complete claims for a final settlement of the accounts arising from the period of federal control. In addition to the settlement with the Spokane, Portland & Seattle, several more with smaller companies are understood to be about ready to be made, but many of the larger systems have stated that they will not be able to compile all of their data for several months. As a result large sums due the railroads for rental, as to which there is practically no dispute, are tied up because the Railroad Administration is declining to pay the entire amounts due for rental until the final settlement in order that it may hold enough to protect its own claims. Most of the companies that have filed their complete statements are the smaller companies, although they include the Seaboard Air Line, the Western Pacific and the Virginian, the Pullman Company and the Clyde & Mallory Steamship lines. Many other companies have filed claims for certain items.

The largest items in the claims of the railroads are for under-maintenance of way and structures and equipment and for materials and supplies, and there are counterclaims by the government on the same accounts. About 30 roads have now filed claims for under-maintenance. A few have stated they have no claims of this character and in some instances companies have admitted they owe the government comparatively small sums on this account. One of the interesting claims is that of the Western Pacific for $14,347,007, which includes $361,755 for damage done by creeping rails caused by using its track between Wells and Winnemucca, Nev., in one direction only, the Southern Pacific's line having been used for traffic in the other direction.

### Two Methods of Calculating

Probably the source of the greatest contention between the roads and the government is found in the question of the maintenance settlement. In general the companies have based their contention, in preliminary discussion with the Railroad Administration officials, on the so-called engineering method of calculating the degree of maintenance during federal control as compared with the test period. This depends on the number, quantity and quality of physical units of materials used, as distinguished from the so-called accounting method, relied on by the Railroad Administration, which is based on the money expended in maintenance, after equations have been made for differences in prices and wages between the test period and the period of federal control. The standard contracts between the companies and the government provided that the property should be returned in substantially as good condition and repair as when taken over, with a proviso that the expenditure of the same amount of money as in the test period, after making proper allowance for differences in prices, wages, volume of traffic, etc., should be taken as a compliance with that covenant. While the government is basing its position as to maintenance on the amount of money expended, and certain equation formulas it has worked out, the railroads contend that this method contains no provision for the inefficiency of labor as a result of which the expenditure of given sums produced less physical results. The Railroad Administration frankly admits that this is so, but takes the position that the contracts do not assume to protect the companies against the inefficiency of labor and that morally the government should not be expected to do so in view of the fact that it represents a world-wide condition resulting from the war. The government officers have said they will not recede from this position unless and until they are forced to do so by a Supreme Court decision. As it is extremely difficult to prove the condition of a railroad as of either date, December 26, 1917, or February 29, 1920, it would seem that the government has an advantage in the method which it is depending upon, and the lesser railroads are said to be coming more and more to concede the correctness of the accounting method. Some of the larger systems, however, are compiling elaborate records to show a deficiency in physical units of maintenance.

The government is also depending largely on the amounts expended for maintenance of equipment to offset some under-maintenance of way and structures.

All claims made by the roads include items for money due on a regular statement of account, including rental, and in the case of roads that have not signed contracts there is usually a claim for special compensation in addition to the standard return. They also include amounts due on open account in favor either of the company or of the government, and cash taken over or sums collected for one side or the other, with interest.

Most roads owe the government for additions and betterments made during federal control.

On the other hand, the government owes money to most roads, with no dispute except possibly as to the amount, for depreciation reserve on equipment. Frequently there is a claim against the government for equipment destroyed but not replaced and most companies have claims for structures destroyed by fire or extraordinary losses, which the government has to pay, because it carried its own in-

surance. There are also claims on behalf of most roads for losses in connection with additions and betterments made for war purposes, such as tracks to cantonments or facilities for joint use as a part of the unification program which the individual roads now say they have no use for. Approximately 9,000 of such claims have already been filed. Where the government finds that it is clearly liable the tracks are promptly torn up and the materials sold for salvage, frequently to the company that made the claim, for its use elsewhere.

The adjustment of materials and supplies is a complicated process, requiring an inventory and a check of thousands of items so that the adjustment may be made on the basis of the prices as of February 29. In some cases a road had more materials and supplies on hand when returned than when taken over, or than it desires to carry, although in general the government will have to pay large sums when it has to pay for the replacement of materials used up because of their greater value at the present time.

The claims when received by the Railroad Administration are separated and the various parts assigned to the appropriate department or division, where they are checked up before conferences with the representatives of the roads are undertaken. As the settlements are so complicated and involve so many disputed items which would require a vast amount of labor to investigate scientifically the director general is favoring the plan of lump sum settlements on a compromise basis. This was the method followed in the Spokane, Portland & Seattle case, in which the road received $1,600,000, after only three days had been spent in negotiation after the claims of the two sides had been set up. While it was at first reported that this settlement included an item for under-maintenance, it is now stated that there were claims on both sides of the maintenance account, the differences between which were largely extinguished in the lump sum settlement and the Railroad Administration considers it is at least as much entitled to say that it collected a sum for over-maintenence as the road is to say it collected for under-maintenance.

It is believed that the compromise basis will be adopted in a large number if not a majority of cases in the interest of expedition, because there is a shortage of competent accountants and many companies will doubtless prefer to make a settlement that will bring prompt returns to protracting the negotiations. The Railroad Administration has not itself filed many claims against the companies, although its organization has done a great deal of preparatory work in that direction, but has rather concentrated on its counter-claims against the companies that have filed their statements, using its own as offsets against those filed by the companies.

George H. Burgess, chairman of the valuation committee of the Delaware & Hudson, and a member of the maintenance of way committee of the Corporate Engineers' Association, testified before the Interstate Commerce Commission in the recent general rate hearing in reply to assertions by some of the shippers that some of the western lines had been over-maintained during federal control. He presented the table above showing quantities of some of the principal materials used on the western lines:

Commissioner Eastman tried to draw out the witness' opinion as between the so-called accounting method and the engineering method. Mr. Burgess asked to be excused from expressing an opinion beyond saying that the accounting method is simpler and shorter.

MATERIALS USED IN MAINTENANCE FOR WESTERN DISTRICT AS REPORTED BY FEDERAL OFFICERS

| | Test period average | 1919 | Increase or decrease | Per cent increase or decrease |
|---|---|---|---|---|
| Treated ties. Number | 15,328,997 | 20,145,110 | 4,816,113 | 31.4 |
| Untreated ties ..... Number | 30,091,671 | 18,799,770 | d11,291,901 | d37.5 |
| Total ties, Number | 45,420,668 | 38,944,808 | d6,475,788 | d14.2 |
| Sw. and bridge ties.. .....Ft. B. M. | 71,525,482 | 56,286,175 | d15,239,307 | d21.3 |
| New rail .....Tons | 549,556 | 607,347 | 57,791 | 10.5 |
| Relay rail .....Tons | 303,997 | 256,365 | d47,632 | d15.7 |
| Total rail .....Tons | 853,553 | 863,712 | 10,159 | 1.2 |
| Stone ballast. Cu. yd. | 865,180 | 618,943 | d246,237 | d28.5 |
| Gravel ballast, Cu. yd. | 3,892,520 | 3,333,860 | d558,660 | d14.3 |
| Other ballast, Cu. yd. | 3,055,560 | 3,018,187 | d37,373 | d1.2 |
| Tot. ballast, Cu. yd. | 7,813,260 | 6,970,990 | d842,270 | d10.8 |
| Miles of road ..... | | | 133,574 | |
| Miles of road reported ..... | | | 133,574 | |

NOTE.—Figures for 1919 include an estimate for 30 per cent of mileage in Northwestern Region, figures from which were not obtained prior to compiling of this report.
d—Decrease.

## RAILROADS ASK LOANS FOR ADDITIONS AND BETTERMENTS

The Association of Railway Executives submitted to the Interstate Commerce Commission on June 26, the preliminary report of its special committee making recommendations, requested by the commission, as to the applications of various carriers for loans from that part of the $300,000,000 loan fund provided by the transportation act which the commission has decided to use to aid the railroads in acquiring new equipment and for additions and betterments which will promote the movement of cars.

The commission has acted on the recommendations in several cases and has announced loans to assist in paying for equipment already ordered by several railroads, but the bulk of the applications filed by the roads are yet to be acted upon.

Bangor & Aroostook, shop machinery, coal storage plant, additional passing track, $20,000; Boston & Maine, extension of yard tracks, roundhouses and engine terminal facilities, $1,814,047; Central New England, additional yard tracks, sidings and shops, $300,000; Chesapeake & Ohio, contingent on company supplying $2,500,000 additional; for double tracking, grade reduction and other work necessary to extend operation of Mallet locomotives and large capacity coal cars, $4,750,000; Chicago Great Western, yard tracks and repair shops, $150,500; Chicago, Indianapolis & Louisville, car repair shop, $200,000; Chicago & Western Indiana, completion of two yards, automatic block signals, interlockers, tools, $1,805,000; Cincinnati, Indianapolis & Western, shop machine tools, $33,500; Delaware & Hudson, elimination of tunnel, development of two yards, $2,250,000; Erie, additional yards, yard tracks, shop machinery, tools, extension of erecting shop, second track, $1,496,897; Great Northern, additional yard tracks, car shops, shop buildings, tools, $1,550,000; Gulf Coast Lines, yards and sidings, shops, shop machinery, heavier rail, $200,000; Gulf, Mobile & Northern, interlockers, heavier rail, $73,000; Hocking Valley, additional main tracks, yard tracks, sidings, shops, $1,371,305; Long Island, additional yards, yard tracks, storage tracks, interchange tracks, $500,000; Minneapolis & St. Louis, additional main tracks, yard tarcks, sidings, engine terminal facilities, shops, shop machinery, ballast, $546,500; Northern Pacific, additional yard tracks, sidings, interlockers, engine houses, shop buildings, shop machinery, tools, car sheds, $2,400,000; New York, New Haven & Hartford, development of freight yards, engine terminals, shops, tools, automatic signals, $8,130,000; Norfolk Southern, for flattening curves, reducing grades and strengthening bridges so as to materially increase train haul of engines, $200,000; Texas & Pacific, new yards, and engine facilities, additional passing tracks, shop machinery, train despatching circuits, water supply, $1,688,000; Toledo, St. Louis & Western, yard tracks, storage tracks, new roundhouses, heavier rail and ballast, $510,000; Virginian, completion of double track on ruling grade, $2,000,000; Wabash, enlargement of shops, shop tools, heavier rail, $977,200; Western Maryland, extension of coal pier, engine terminal, freight yard, passing sidings, $622,800; Wheeling & Lake Erie, additional freight yards, engine terminals and repair shops, $1,461,540. Total, $35,050,289.

Besides the above, recommendations have been made for the loan of $7,062,053 to apply on additions and betterments to existing equipment and $26,868,629 for new locomotives, which it is hoped will cover 50 per cent of the purchase price of 599 freight and 239 switching locomotives for 25 roads. A recommendation has also been made for the loan of $52,260,537 to 19 roads, which is intended to permit the purchase of 45,021 cars for freight service.

Subsequent to the receipt of these recommendations, the commission had approved loans aggregating $16,593,275 to seven roads for various purposes. A loan of $135,000 was approved for the Aransas Harbor Terminal Railroad on the condition that a total of $278,000 shall have been subscribed and paid by security holders of the railroad and communities interested therein. The purpose of these funds is for the restoration of damage done to the line by a hurricane. A loan to the Bangor & Aroostook of $200,000 is intended partially for additional shop machinery, tools, a cold storage plant and several passing tracks.

In addition to the loans already made for equipment the commission has also certified to the Secretary of the Treasury a number of loans to railroad companies contingent upon the respective carriers raising contributions of private capital to supplement the loans at what the commission considers reasonable rates of interest, varying from 6 to 7 per cent. Most roads have been paying in the neighborhood of 7½ per cent for money. The commission also announced a hearing to be held on July 29 in order that it may be better advised regarding the rates of interest which carriers may be required to pay.

### ACCOUNTING FOR MAINTENANCE EXPENDITURES

The Interstate Commerce Commission Division No. 4 has issued the following notice regarding its interpretation of Paragraph (3) of Section 209 (f) of the Transportation Act, 1920, dealing with the method of computing railway accounting income for the guaranty period, from March to August, 1920, inclusive, which reads as follows:

> 'There shall not be included in operating expenses, for maintenance of way and structures, or for maintenance of equipment, more than an amount fixed by the commission. In fixing such amount the commission shall so far as practicable apply the rule set forth in the proviso in paragraph (a) of section 5 of the "standard contract" between the United States and the carriers (whether or not such contract has been entered into with the carrier whose railway operating income is being computed).'

The notice says: "The commission, having received from various carriers inquiries regarding procedure under the above provision, announces it will fix the amount of maintenance that may be included in operating expenses for the purpose of determining if the operating income for the guaranty period as a whole for any carrier is in excess of or below the amount of the 'guaranty,' on the basis of one-half of the average annual maintenance expenditures and charges of each carrier for the three years ended June 30, 1917, properly equated in accordance with the rule set forth in the proviso in paragraph (a) of Section 5 of the standard contract. The carriers are invited to submit briefs to the commission on or before July 17, 1920, setting forth their views with respect to the interpretation and application of said proviso in this connection.

"The foregoing is not to be construed as prohibiting any carrier from expending for maintenance purposes such amounts as it sees fit, but it should be understood that in computing railway operating income for the purpose of determining whether such income is in excess of or below the amount of the 'guaranty,' the commission will not allow for maintenance any amount in excess of the amount fixed by it. The charges to operating expenses should be made in accordance with the accounting regulations of the commission regardless of the limit for maintenance hereafter to be fixed in computing the amount of the guaranty under Section 209. In other words, it is not expected that the operating income reported monthly will, without modification, necessarily indicate the operating income which will be used in computing the amount of the guaranty."

### APPLICATIONS FOR CERTIFICATES OF CONVENIENCE AND NECESSITY

The Interstate Commerce Commission has issued directions governing the filing of applications for certificates of public convenience and necessity or permission to retain the excess earnings of a newly constructed railroad in accordance with the provisions of the transportation act.

An application for a certificate of public convenience and necessity must set forth detailed information including the name of each state and of each county or parish in which such additional or extended line of railroad is proposed to be constructed or operated, or in which all or any portion of a line of railroad, or the operation thereof, is proposed to be abandoned; the location, route or routes and termini of the line proposed to be constructed, operated or abandoned; a brief statement of the reasons relied upon to show that the present or future public convenience and necessity require or will require the construction or operation or construction and operation of such additional or extended line of railroad or permit of such abandonment; and what hearing, if any, applicant desires in the matter of its application.

Upon receipt of any application for such certificate the commission will cause notice to be given to and a copy filed with the governor of each state in which such line is proposed to be constructed or operated, or the operation is proposed to be abandoned, with inquiry as to whether or not such governor or any representative of such state desires to be heard in the matter, and notification of the right to be heard as provided in the interstate commerce act with respect to the hearing of complaints or the issuance of securities, and the applicant carrier will be required to publish said notice and the copy of the application for three consecutive weeks in some newspaper of general circulation in each county in or through which the line of railroad is constructed or is to be constructed, or operates or is to operate, or all or any portion of a line of railroad, or the operation thereof, which is proposed to be abandoned.

Upon receipt of the application the commission will transmit to the applicant carrier a questionnaire or list of interrogatories to be executed, and the return to such questionnaire or list of interrogatories shall be made under oath and the original shall be signed and filed with the secretary of the commission on behalf of the applicant carrier by its president, a vice-president, auditor, controller or other executive officer having knowledge of the matters therein set forth. Copies of the returns made to the questionnaire or list of interrogatories will be furnished by the commission to the governor of each state interested, as in the case of the applications. With the return of the interrogatories the applicant carrier will be required to furnish proof to the commission that notice and copy of the application have been published for three consecutive weeks in some newspaper of general circulation in each county in or through which said line of railroad is constructed or is to be constructed, or operates or is to operate, or all or any portion of a line of railroad, or the operation thereof, which is proposed to be abandoned.

Any carrier, or any corporation organized to construct and operate a railroad, proposing to undertake the construction and operation of a new line of railroad and applying, to the commission, in accordance with paragraph 18 of section 15a of the interstate commerce act, for permission to retain for a period not to exceed 10 years all or any part of its earnings derived from such new construction in excess of the amount in said section previously provided, shall make application and return to the

questionnaire ordered with respect to applications for certificates of convenience and necessity, and the procedure in such cases shall be substantially the same. The form of questionnaire is prescribed in the order.

### ANOTHER DEFICIT IN MAY

A partial summary of railway returns for May and five months of this year issued by the Interstate Commerce Commission indicates that roads operating 196,000 miles have earned practically no net operating income this year except the $50,000,000 of back mail pay taken into the accounts in January. The summary does not include reports of 37 roads, among which are such large systems as the Pennsylvania, Illinois Central and Chicago, Burlington & Quincy, but it shows for the five months a net operating income of only $47,923,347, as compared with $82,947,746, in the corresponding months of 1919, and practically all of this must be the back mail pay. For May the roads included in the summary show an increase of $36,000,000 in revenues, but an increase of $66,000,000 in expenses, and a deficit of $7,266,964, as compared with a net operating income of $31,730,918 in May, 1919. The eastern roads for May show a deficit of $9,830,489, the Southern roads a net operating income of $3,309,204 and the western roads a deficit of $745,679.

In reply to a Senate resolution, introduced by Senator Capper, as to prices and conditions in the lumber industry, the Forest Service discussed the lumber situation from the standpoint of the railroads as follows:

"The normal demand for railroad ties is somewhere between 100 million and 125 million annually. In 1918, however, purchases were slightly under 77,500,000 and in ten months of 1919 were slightly over 84,500,00. During the war and the period of government supervision of the railroads extensions could not be made, and improvements were necessarily confined to those of an urgent character. Lumber purchases were therefore at a minimum. Even under such a policy of retrenchment railroad purchases of sawed materials, excluding hewn railroad ties, telephone poles, etc., aggregated approximately 4½ billion feet, or 14 per cent of the total lumber cut of the country for 1918.

"That there have been profound changes in the lumber distribution from different regions during the past year is shown by the invasion of the Middle Western and Eastern states by Douglas fir ties. These are regions which in the past have been supplied with the standard oak tie cut immediately along the rights of way, or with southern pine ties from the South. During 1919 orders amounting to nearly 100,000,000 board feet were placed for Douglas fir ties for eastern roads, because of the uncertainty of securing adequate supplies along their rights of way and because of the excessive costs of local ties. Douglas fir ties are now said to be costing eastern roads from $1.75 to $2 each at their treating plants or on their rights of way. In other words, oak ties cut within a few miles of the right of way and bearing practically no charge in freight, and southern pine ties, are now being replaced by fir ties hauled overland across the continent or shipped through the Panama Canal.

"To supply their general lumber requirements, the railroads have obvious advantages in the purchase of lumber from mills along their lines, and increases in prices have been far less pronounced than for other industries. During the last four years, however, the cost of lumber purchased has almost doubled, while the amounts have been reduced. Under the great financial burdens of readjustment and reconstruction following the war, added costs of any important material delay even the most needed repairs and betterments and add to transportation difficulties which react upon all industries and consumers. Uncertainty as to securing adequate supplies of desired materials at the time wanted has made it necessary for railroad companies in general to hold comparatively large surpluses, a tendency which serves to accentuate shortage for all purchasing industries. Railroads operating in the forest regions ordinarily carried a few years ago but from one to two weeks' supplies, since stocks could be replenished quickly. Other roads carried stocks sufficient to last several months. The timber roads are now carrying from six to ten weeks' supplies and other roads sufficient to last from six to nine months."

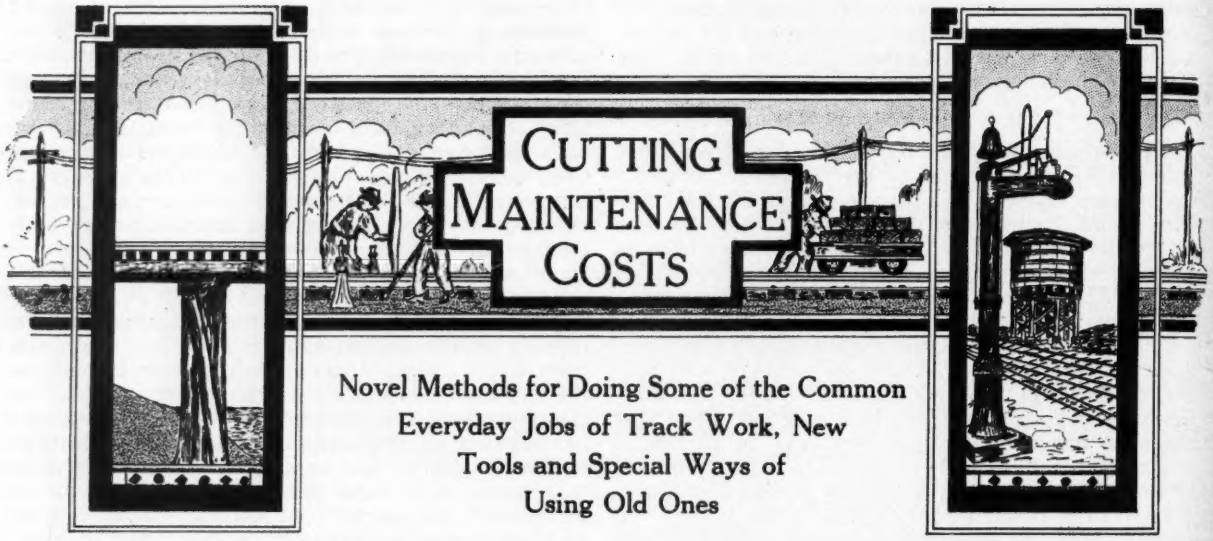
### EARLY RATE DECISION EXPECTED

An early decision by the Interstate Commerce Commission in the general rate advance case increasing both freight and passenger rates to put the railroads on the 5½ or 6 per cent income basis prescribed by the transportation act is expected, now that the commission has before it the award of the Railroad Labor Board issued on July 20. While no intimation has come from the commission, those who have been in touch with the progress of the case are confident that the decision will be handed down by August 1, at least, and that it will allow the roads practically all they have asked for, plus the amount required to meet the wage increase.

The hearings before the commission on the original application of the carriers for $1,017,000,000 additional revenue, which they proposed to raise by increasing freight rates in the eastern territory 30 per cent, in the southern district 31 per cent and in the west 24 per cent, or 28 per cent for the country as a whole, were concluded on July 6. At that time the carriers announced that they would have a method to propose for raising the additional amount needed to meet the wage increase as soon as the wage award was issued and that they would then propose to provide part of the added revenue by increasing passenger fares. Committees of freight and passenger traffic and accounting officers and lawyers representing the three districts met in Washington on July 20, 21 and 22 and on the latter date Alfred P. Thom, counsel for the Association of Railway Executives, filed with the commission a supplemental application proposing that the additional $626,000,000 required by the wage award be provided by a general increase in passenger fares and by an additional increase in freight rates amounting to 9.13 per cent for the country as a whole, or 10 per cent for the eastern lines, 8.57 per cent for the southern lines and 8.23 per cent for the western lines. This would make the total freight advance 37 per cent. In addition to the straight 20 per cent increase in passenger fares the carriers proposed a similar increase in excess baggage rates, a surcharge for Pullman and parlor car passengers equal to 50 per cent of the parlor or sleeping car rate, which is somewhat less than the one-half cent a mile surcharge which was in effect for a time during the war, and an increase in milk rates equal to the proposed advance in freight rates.

The $626,000,000 wage award, added to the $1,017,000,000 already asked by the roads, makes a total of $1,643,000,000 needed to produce a return of 6 per cent on the $20,600,000,000 of railroad property investment, on the basis of the business done during the year ending October 31, 1919, which the roads took as the basis for their estimates, after making adjustments to reflect increases in expenses which occurred during the latter part of the year. This total is equivalent to about 30 per cent of the total railroad revenues for last year.

It is believed that the commission will render its decision about August 1 in order to give a 30-day notice to shippers and to allow the roads time to prepare tariffs so that the rates may be made effective on September 1.




**Novel Methods for Doing Some of the Common Everyday Jobs of Track Work, New Tools and Special Ways of Using Old Ones**

## A WAY TO REDUCE THE CHURNING IN THREE-TIE JOINTS

By W. E. Johnson

Section Foreman, Union Pacific, Topeka, Kan.

MANY BRANCH LINES are laid with light rail (perhaps 65 or 70 lb.), long angle bars and with little or no ballast. On such lines, or where the roadbed is new, the problem of churning joints is usually present. I have found that where three joint ties are used (one immediately under the joint and one near each end of the angle bar), one can eliminate much of this churning by spiking only the two ties under the ends of the joint and leaving the center tie unspiked. This center tie will not then move up and down as the rail springs back and forth under the movement of trains, but will support the joint under load.

## PREVENTING LOW JOINTS IN HIGHWAYS

By G. T. Donahue

Assistant Supervisor of Track, New York Central, Rochester, N. Y.

LOW JOINTS in highway crossings are one of the most common troubles with which the roadmaster has to contend. Some railroads use extra long rails to eliminate them, but the majority of the railroads use the standard length, with the result that all crossings of any width have one or more joints. Where low joints occur in a track having the current of traffic in one direction, it will be found that the receiving rail is battered more and is consequently lower than the leaving rail in the joint. Likewise it will be noticed that the angle bars in this joint are bent in such a manner that the portion of the bars coming in contact with the receiving rail are bent lower than the corresponding portion of bars in contact with the leaving rail in the joint.

After the foreman has been instructed repeatedly to pick up this joint and has done so three or four times, he will notice the deformed bars and in the majority of cases throw them away and use a new pair of bars. The fact is that these bent bars can be used so they will be much better than a new pair and will keep up that joint longer and preserve the rail better, besides making a better riding track. This can be done by turning the bent bars end for end and placing them on the opposite side of the rail from which they were formerly used. Now it will be seen that the high places on the bars are adjacent to the low rail and the low parts of the bars are adjacent to the higher rail. This naturally evens up the joint and tends to bring up and hold the lower rail. This procedure will save bars and keep joints up for longer periods.

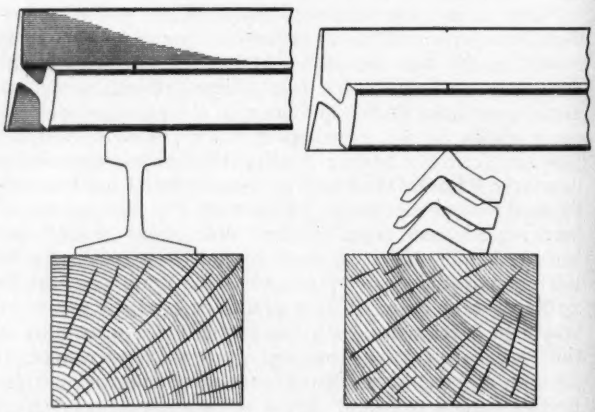
## AN EASY WAY TO BREAK A RAIL

By E. L. Babcock

Erie Railroad, Cameron Mills, N. Y.

THE JUNE ISSUE of the *Railway Maintenance Engineer* contains a letter on breaking rail by J. Morgan. In my opinion, Mr. Morgan's method would be very difficult to apply with a small gang because it requires at least six men. It is therefore impractical when gangs are reduced to three trackmen and a foreman.

However, there is a method by which one can break a



**Either a Rail or a Pile of Anchor Bars May Be Used as a Support**

rail evenly and quickly with a small gang on either a long or short cut. Place a short piece of rail or three angle bars on a firm, solid tie and place the rail to be cut on this foundation in the same manner as in track. Now let one man hold the track chisel crosswise of the flange at the point to be cut and nick it slightly, then nick the other side of the rail in the same manner. Now turn the rail on its side and nick it slightly on the side of the ball, then have all four men pick up one end of the rail

breast high and drop it and it will break. Care should be taken that the nicks are directly over the foundation. Where short cuts are made (seven inches to four feet), the short end may be struck with a hammer with the same results. This saves a lot of time, muscle and temper.

## ELIMINATE THE NIPPING OF TIES

By J. Morgan

Supervisor, Central of Georgia, Goodwater, Ala.

THE SPIKING of ties incident to their renewal in routine repair track work is seemingly a small matter but it offers possibilities for large savings in view of the frequency with which it is encountered. Where ties are being renewed in gravel, cinders, slag or stone ballast I do not believe that it is necessary for a man to nip a tie to be spiked except occasionally, where several ties may be taken out at one place.

I have followed this rule to my satisfaction through 11 years of service as section foreman on a single-track main line section of average curvature, handling about 16 trains daily with engines of average size. To eliminate the nipping of ties, we put the tie under the rail with as little slack as possible and then let the man insert a bar under the end of the new tie when he reaches it with his tamper. The weight of the bar holds it in place while the man tamps it. I usually had one or two men follow up the tamping and do the spiking, but I never let two men work on the same end of a tie. Rather I give one the line side and the other the gage side. I believe that the less we permit our forces to work together, the less time we will lose because of one man waiting for another. I have found that in the average section gang where 100 ties are inserted in a day, about four hours are wasted in nipping ties.

## USING A SPREADER TO REMOVE ICE FROM WATER PANS

By G. T. Donahue

Assistant Supervisor of Track, New York Central, Rochester, N. Y.

ON SUBDIVISIONS where there are three or more tracks with water pans on two or more of them the roadmaster's chief task in the winter months is to keep these tracks open and safe for traffic. Last winter, with the shortage of labor, it would have been almost impossible to accomplish this if we had not made use of means other than man power.

A ballast plow and spreader may be used to great advantage for this purpose. The spreader is used to break down the ice on the shoulders of the embankment and sweep it over on to adjoining tracks. The train is then run up the adjoining tracks, using both ballast plow and spreader simultaneously. In the early winter it is easy to handle this ice by hand, as at that time there is plenty of space to throw it. But as the season progresses the ice begins to pile up near the tracks and it is then necessary to shovel it all back, consequently it must be handled three or four times before getting it back a sufficient distance. If a plow and spreader are used properly at the beginning of winter to plow the ice back to the right of way, when a big storm comes it can be handled effectively. Sometimes it is necessary to break the shoulder ice by hand, but it does not have to be shoveled by hand. Often this shoulder ice is part snow and in this case the plow and spreader will do all the work. It will accomplish as much in four hours as 40 men can do with picks and shovels all day.

## AN ECONOMICAL WAY TO INSTALL A SWITCH

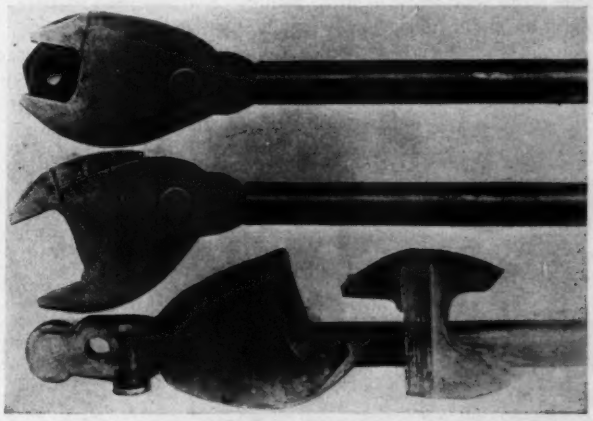
By J. A. Spurlock

Yard Foreman, Missouri, Kansas & Texas, Cushing, Okla.

IT IS THE practice of many track foremen, when installing a switch, to put in the ties first and then lay the switch. I find that it saves much time to lay the frog, main line point and stock rail first, spiking the point securely before starting to put in any switch ties. One can make all necessary cuts and put in the frog and one point and not delay traffic more than 10 or 15 minutes. Then the track can be skeletonized and the switch ties put in and properly spaced, removing every other tie at first. In this way the track can be put in perfect surface and line quicker than if the switch was completed before surfacing. This gives a small gang a better chance to keep trains moving, for a foreman with eight men can put in one point, the frog, and switch ties, and surface and line the switch in one day. On the next day he can easily finish the job without any interference with traffic.

## AN AUTOMATIC TRACK WRENCH

A MOST INGENIOUS automatic wrench has been developed which is of particular interest to track men, because one of its first practical applications has been to the track wrench. It is shown assembled and in parts in the photograph, where it will be seen that there are only four pieces, the handle, interior jaw, exterior jaw and hinge pin. The interior jaw has a socket that fits over a knuckle on the end of the handle, while the exterior jaw encloses the interior jaw and is pivoted on a pin located a short distance behind the center of the



**The Wrench Assembled and in Parts**

socket about which the interior jaw revolves. The engaging faces of the two jaws have corresponding grooves, so that the two jaws slide in a fixed relation to each other as they rotate about their respective centers on the handle.

The operation of the wrench is best understood by reference to the diagrammatic sketch. In this the handle is represented by H, the interior jaw by A, the exterior jaw by B and the engaging grooves of the two jaws by the plunger and cylinder arrangement at C. It is clear from this sketch that when the handle is turned in a clockwise direction, the two jaws move away from each other and that when the handle is turned in the opposite or counter-clockwise direction, the two jaws move towards each other. The pin hole in the handle is slotted a sufficient amount to avoid any binding with the varying angular positions of the handle.

In using this wrench it is put on the nut in a position

such that the direction in which the bolt is to be turned is the same as the direction in which the handle must be pulled in order to bring the jaws together. The wrench is held by the operator in such a manner that the nut is always in contact with the interior (upper) jaw, so that when the handle is turned back the exterior jaw will clear

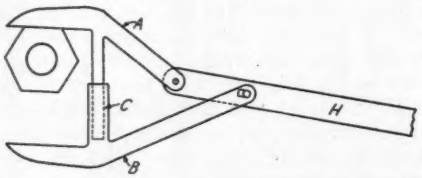


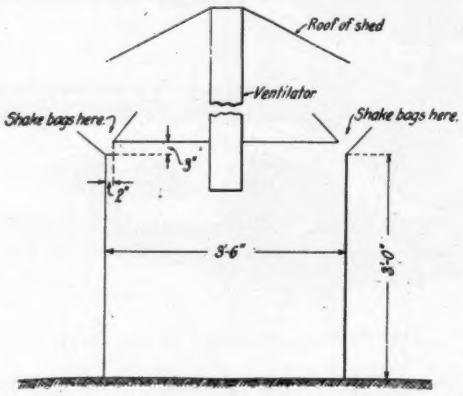

**Diagram Illustrating How the Wrench Works**

the nut. The action is automatic; the jaws separate as the handle is pulled back to take a new grip and come together again the instant that the handle is pulled forward to turn the nut.

The wrench as proportioned for track use has a width of 3½ in. across the body and gives a minimum opening of jaws of ¾ in. and a maximum opening of 2¼ in. The handle is three feet long, but this, of course, can be modified to suit particular conditions. The two jaw pieces are drop forgings. The wrench is being manufactured by the Allan-Diffenbaugh Wrench & Tool Company, Chicago.

## CLEANING CEMENT SACKS

IN THE CLEANING of cement sacks a closed box with a ventilator has been found to eliminate dust and to save considerable cement. A recent issue of "Successful Methods" describes a box of this sort that has been used by John Owen, foreman of a concrete mixing plant on the Miami Conservancy District, near Dayton, Ohio, with satisfactory results. As shown in the illustration, the device is 3½ ft. by 6½ ft. by 3 ft. deep with




**A Vertical Section of the Cleaning Box**

an air shaft running through the roof of the shed. The sides of the box, beginning three inches from the top of the box proper, flare out at an angle of 45 deg., and this in conjunction with the top or lid allows a 2-in. vertical opening. In cleaning a sack, it is dropped mouth downward through this 2-in. slot and shaken, the circulation of air downward through the slot and up through the ventilator preventing the escape of any cement dust.

It was found that, in addition to the advantage gained by freeing the operator from the disagreeable cement dust, the time for cleaning sacks was cut in half and fully twice as much cement reclaimed as when the sacks were shaken in an open box. Eleven full sacks of cement were recovered in cleaning 1,500 sacks.

## ASSOCIATION ACTIVITIES

### AMERICAN RAILWAY ENGINEERING ASSOCIATION

The preliminary committee work having been largely completed, the work is now generally in the hands of the various sub-committees. Progress reports will be made at committee meetings scheduled for August and September. The proceedings of the association for 1920 are now practically ready for binding and cover 1,700 pages. It is anticipated that they will be ready for distribution about the first of September.

The association offices have recently been favored with a visit by C. W. Lloyd-Jones, representative of the bridge committee of the Railway Bureau of the Government of India, who is making a study of impact in railway bridges. He has given considerable of his time to a study of the records of impact tests made under the direction of the Committee on Iron and Steel Structures.

### BRIDGE AND BUILDING ASSOCIATION

Advices received from the chairmen of several of the committees indicate that a number of the reports will be completed and in the hands of the secretary in the near future. The committee appointed to recommend the revision of the constitution has completed its report and it will be sent to the members of the association within a couple of weeks, for their information preliminary to final action at the convention.

### WOOD PRESERVERS' ASSOCIATION

A meeting of the executive committee was held at Madison, Wis., on July 22, to consider the reports of committees and to plan for the annual convention which will be held in San Francisco next January. Among the plans under consideration for this meeting are the arrangement for a special train from Chicago to San Francisco, stopping briefly en route at a number of points of interest to railway men concerned with timber preservation.

### ROADMASTERS' ASSOCIATION

The members of the executive committee and the chairmen of a number of the committees met at the Hotel Statler, St. Louis, on July 10 to make preparations for the annual convention which will be held in that city on September 21-23. The program determined upon is as follows:

TUESDAY MORNING, SEPTEMBER 21.

10:00 a. m. Convention called to order. Opening business, reading of minutes of last meeting, address of president, etc.

11:00 a. m. Committee report on "The Economical Weights of Rail for Various Classes of Traffic," J. B. Baker, engineer maintenance of way, central region, Pennsylvania System, Cleveland, O., chairman.

TUESDAY AFTERNOON.

2:00 p. m. Paper—"The Maintenance of Track Joints."

3:30 p. m. Committee report on "The Equation of Track Values," L. C. Ayers, assistant superintendent, Norfolk & Western, Crewe, Va., chairman.

TUESDAY EVENING

7:30 p. m. Paper—Methods of increasing the efficiency of maintenance of way forces—F. G. Jonah, chief engineer, St. Louis-San Francisco Railroad, St. Louis, Mo.

8:30 p. m. "The Americanization of Tony." Moving pictures of maintenance forces engaged in track work; furnished by the Pennsylvania Railroad.

9:15 p. m. Reception by members of the ladies' auxiliary.

WEDNESDAY MORNING, SEPTEMBER 22.

9:30 a. m. Committee report on "The Relative Economy of Treated and Untreated Ties, the Various Kinds of Wood and the Treatment," W. F. Muff, roadmaster, Atchison, Topeka & Santa Fe, Newton, Kan., chairman.

11:30 a. m. Paper—"Where Are Our Ties Coming From"—Dr.

Hermann von Schrenk, consulting timber engineer, St. Louis, Mo.

WEDNESDAY AFTERNOON

2:00 p. m. Committee report on "Supervision (including consideration of the proper length of roadmasters' or supervisors' territory, the supervison and training of foremen, etc.)," W. Shea, general roadmaster, Chicago, Milwaukee & St. Paul, Chicago, chairman.

3:30 p. m. Committee report on "The Construction of Highway, Street and Farm Crossings," J. B. Martin, supervisor of track, New York Central, Elkhart, Ind., chairman.

4:30 p. m. Adjournment to inspect exhibit of the Track Supply Association.

6:30 p. m. Annual banquet given by the Track Supply Association to the members of the Roadmasters' Association and their families.

THURSDAY MORNING, SEPTEMBER 23.

9:30 a. m. Committee report on "Relative Economy of Repairing Frogs, Switches and Crossings by Welding," M. Lipman, division engineer, Eastern Region, Pennsylvania System, Philadelphia, Pa., chairman.

11:00 a. m. Business session, including election of officers, selection of location for next convention, etc.

12:30 p. m. Adjournment.

THURSDAY AFTERNOON

A tour of inspection of the railway terminals.

The members of the executive committee of the Track Supply Association also met in St. Louis on July 10 to arrange the details for their exhibit, which will be presented in connection with the Roadmasters' Association. The present indications are that the exhibit will exceed those of previous years in the number of firms represented, nearly 50 applications for space having already been received.

LIST OF EXHIBITORS ALREADY ALLOTTED SPACE

Air Reduction Sales Company, New York City.
American Hoist & Derrick Company, St. Paul, Minn.
American Steel & Wire Company, Chicago.
American Valve & Meter Company, Cincinnati, Ohio.
Anchor Company, The, New York City.
Balkwill Manganese Crossing Co., Cleveland, Ohio.
Bethlehem Steel Co., Philadelphia, Pa.
Buda Company, Chicago.
Bucyrus Company, South Milwaukee, Wis.
Carbic Manufacturing Company, Duluth, Minn.
Chamberlain, M. E., St. Louis, Mo.
Chicago Malleable Casting Co., Chicago.
Chipman Chemical Engineering Co., New York City.
Crerar Adams & Co., Chicago.
Diamond State Fibre Company, Bridgeport, Pa.
Elliot Frog & Switch Company, East St. Louis, Ill.
Fairbanks Morse & Co., Chicago.
Fairmont Gas Engine & Railway Motor Car Co., Fairmont, Minn.
Hauck Manufacturing Company, New York City.
Hayes Track Appliance Company, Richmond, Ind.
Ingersoll-Rand Company, New York City.
Kalamazoo Railway Supply Co., Kalamazoo, Mich.
Lundie Engineering Company, New York City.
Maintenance Equipment Company, Chicago.
Mudge & Company, Chicago.
National Lock Washer Company, Newark, N. J.
Oxweld Railroad Service Company, Chicago.
P. & M. Company, Chicago.
Positive Rail Anchor Company, Marion, Ind.
Q. & C. Company, New York City.
Rail Joint Company, The, New York City.
Railroad Supply Company, Chicago.
Railway Review, Chicago.
Ramapo Iron Works, Hillburn, N. Y.
Reading Specialties Company, Reading, Pa.
Ruby, E. L., Philapedlphia, Pa.
Sellers Manufacturing Company, Chicago.
St. Louis Frog & Switch Company, St. Louis, Mo.
Simmons-Boardman Publishing Co., Chicago.
Templeton, Kenly & Co., Ltd., Chicago.
Track Specialties Company, New York City.
Union Switch & Signal Company, Swissvale, Pa.
Verona Tool Works, Pittsburgh, Pa.
Wharton, Jr. & Co., Inc., Wm., Eastman, Pa.
Woolery Machine Co., Minneapolis, Minn.
Wyoming Shovel Works, Wyoming, Pa.

## THE MATERIAL MARKET

THREE FACTORS are serving to disturb conditions in the material market. These are the growing scarcity of fuel, the congestion of the railroads and the regulations and restrictions being placed on rail traffic to overcome congestion. The fuel situation is becoming very serious in the iron and steel industry, resulting in some enormous advances in the price of coke, which, however, have not yet affected the prices of finished materials. The effect of rail congestion on the transportation of material is not any worse than it has been for some weeks, but certain lines of production have been seriously hit by the ruling of the Interstate Commerce Commission reserving all open top cars, east of the Mississippi river, to the coal industry. Subsequently, this order was modified somewhat. Nevertheless, this ruling has been very serious for the sand, gravel and stone industry and has also interfered in the shipment of finished iron and steel products. The lumber industry has been affected to some extent by the recent order at Chicago largely prohibiting reconsignment. This has the effect of prohibiting transit cars of lumber.

The railroads continue to make inquiries for rails for 1921 delivery, but no actual orders have been brought to notice. There is also considerable activity in the purchase of track fastenings. One western road recently bought 1,000 tons of tie plates at four cents per pound. A manufacturer of iron tie plates at Chicago is now out of the market. The price of track bolts has advanced appreciably in the Pittsburgh district, as indicated in the table below. Wire and wire products have also advanced. In the structural market inquiries for steel cars constitute the most important prospect of consumption by the railroads. An inquiry from the Chesapeake & Ohio for 900 tons of bridge steel is the most notable item recorded recently. Business is slow and prices are weakening to the extent of eliminating the higher premiums for prompt delivery.

| | Prices in Cents Per Pound — June 15 | | July 20 | |
|---|---|---|---|---|
| | Pittsburgh | Chicago | Pittsburgh | Chicago |
| Track spikes | 4.00 | 3.82 to 4.27 | 4.00 | 3.82 to 4.27 |
| Track bolts | 4.90 to 5.00 | 5.17 to 5.27 | 6.00 | 5.17 to 5.27 |
| Boat spikes | 4.25 | 4.52 | 4.50 | 4.77 |
| Angle bars | 2.75 | 2.75 | 2.75 | 2.75 |
| Tie plates, steel | 2.75 | 2.75 | 2.75 | 2.75 |
| Tie plates, iron | 3.00 to 4.00 | 3.75 | 3.75 to 4.00 | 3.75 to 4.00 |
| Plain wire | 3.00 to 3.75 | 3.27 to 4.02 | 3.00 to 4.00 | 3.27 to 4.27 |
| Wire nails | 3.25 to 4.00 | 3.52 to 4.27 | 3.25 to 4.25 | 3.52 to 4.52 |
| Barbed wire, galv. | 4.10 to 4.45 | 4.37 to 4.72 | 4.10 to 4.95 | 4.37 to 5.22 |
| C. I. Pipe, 6-in. or larger (per ton) | | 76.80 | | 76.80 |
| Plates | 2.65 to 3.50 | 2.92 to 4.27 | 2.65 to 3.50 | 2.92 to 3.72 |
| Shapes | 2.45 to 3.25 | 2.72 to 4.27 | 2.45 to 3.50 | 2.72 to 3.72 |
| Bars (steel) | 2.35 to 3.50 | 2.62 to 4.27 | 2.35 to 3.50 | 2.62 to 4.27 |

There has been some restoration in the price of scrap, although very little scrap is moving owing to the railroad situation.

| | Per Gross Ton — Chicago | St. Louis |
|---|---|---|
| Relaying rails | $52.50 to $57.50 | $50.50 to $55.50 |
| Rerolling rails | 34.00 to 35.00 | 31.50 to 32.00 |
| Rails less than 3 ft. long | 27.50 to 27.50 | 23.00 to 23.50 |
| Frogs and switches, cut apart | 23.50 to 24.50 | 24.00 to 24.50 |
| | Per Net Ton | |
| No. 1 railroad wrought | 24.50 to 25.00 | 24.00 to 24.50 |
| Steel angle bars | 23.50 to 24.00 | 21.00 to 21.50 |

The lumber dealers claim that there has been a cessation of the decline in lumber prices, which they feel are now at the bottom. Cement prices remain stationary except for an advance of seven cents at St. Paul.

| | | | |
|---|---|---|---|
| Pittsburgh | $2.20 | St. Paul | $2.42 |
| Cleveland | 2.42 | Toledo | 2.38 |
| Indianapolis | 2.42 | Duluth | 2.20 |
| Chicago | 2.15 | Milwaukee | 2.30 |

# GENERAL NEWS DEPARTMENT

**Laws passed recently by Minnesota and North Dakota** require railways to provide suitable shelter for men engaged in the work of repairing cars. The Minnesota law requires that such buildings shall be erected wherever six men are engaged at one time, while in North Dakota the minimum is five men.

**The Division of Statistics** of the Bureau of Foreign and Domestic Commerce recently compiled detailed figures by countries of exports of railway track materials in May, which showed that the exports of rails amounted to a total of 58,497 tons, valued at $3,434,893; of spikes, 3,072,767 lb., valued at $137,087, and of switches, frogs, splice bars, etc., valued at $582,278.

**The Pennsylvania Railroad** has recently placed in service a grain elevator in which a unique form of box car unloader has been installed by means of which the grain door is pushed inward and the car tipped sidewise and endwise to discharge the grain into hoppers. Three men can unload a car with this equipment in 10 min.

**The state registrar of vehicles in New Hampshire** announces that the law requiring automobiles to limit speed to 10 miles an hour within 100 feet of railroad grade crossings is being rigidly enforced. Various penalties are being exercised for disobedience, such as a fine of $50, imprisonment for three months, both fine and imprisonment or the revocation of the driver's license.

**A new department** has been created by the Illinois Central in which employees coming in contact with the public will be taught uniform practices and civil and polite dealing with the patrons of the road. Meetings will be held at different places along the line and questions that will bring more harmonious relations with the public will be discussed. **E. H. Baker,** trainmaster at Champaign, Ill., has been appointed supervisor of passenger service employees, with headquarters in Chicago.

**Suit has been filed in the Court of Claims at Washington** by the Cambria Steel Company for the recovery of $236,675.64 alleged to be due it on account of 8,846 gross tons of steel rails commandeered by the Navy Department between March 18, 1918, and February 25, 1919. The Navy Department paid $35 a ton on account and later named as a reasonable price the figures of $45 a ton for Bessemer rail and $47 for open hearth recommended by the Industrial Conference Committee. The company claims that the cost of the rails plus 10 per cent as profit ranged from $58.69 to $73.95.

**The Northern Railway of France** has almost entirely completed the repair and renewal of lines, bridges and tunnels and normal express services will again be practicable on the Paris-Lille-Tourcoing, Paris-Saint Quentin-Erque lines and Paris-Laon-Hirson lines. Out of over 600 bridges damaged or destroyed, 475 are now permanently restored and 80 others are on the point of completion. The three tunnels of Vauxaillon, La Férée and Guise, which were blown up, are repaired. Of 113 destroyed road bridges, 50 are restored. At the great Hellemmes shops, where only the walls remained, a temporary restoration was effected which permitted the repair of 147 engines during last year. All restrictions in regard to freight traffic on the Nord line have been withdrawn.

**Engineering Council,** which has been studying the matter of Payment for Estimating in connection with the American Institute of Architects and the Associated General Contractors of America, adopted on June 17 the conclusion in a report of a special committee to which the report of the conferees had been referred, as follows: "Whenever in the execution of work, competitive bids are called for on detailed plans and specifications, those invited to bid should be provided with such an estimate of the quantities involved in the work as the surveys, plans and specifications permit to be made. The intent of this requirement is that a single estimate of quantities should be made by or for the engineer, architect or other representative of the owner, so that each separate bidder will not be put to the expense of making up a separate schedule for estimates. This latter practice not only means a needless waste in the carrying on of contract work, but also discourages bidders and causes needless repeated handling of official plans and specifications in making up separate schedules of estimates."

**The importance of reaching final settlements** at the earliest possible date between the Railroad Administration and the companies was recently urged by Director General Payne of the Railroad Administration in a letter addressed to the railroads. "It will be my purpose," he said, "to deal as liberally as may be to the end that all proper assistance may be given the roads, but action in this regard will be in aid of final settlements, it being the definite policy to wind up the affairs of the Railroad Administration at the earliest moment possible. By final settlement is meant compensation, maintenance and claims of all kinds pro and con. If genuine cooperation is given by the roads it is hoped that final settlements may be made with reasonable promptness."

**The American Federation of Labor** went on record in favor of government ownership of the railroads at its convention at Montreal on June 17 through the adoption of the following resolution:

"Resolved, That the fortieth annual convention of the American Federation of Labor go on record as indorsing the movement to bring about a return of the systems of transportation to government ownership and democratic operation; and be it further

"Resolved, That the executive council be and are hereby instructed to use every effort to have the transportation act of 1920 repealed and legislation enacted providing for government ownership and democratic operation of the railroad systems and necessary inland waterways."

Prior to the passage of this resolution President Gompers opposed it in a spirited debate on the floor.

**The volume of freight traffic** continues large as compared with the corresponding weeks of 1919, although the totals are still behind those of 1918. Totals of cars of revenue freight loaded and received from connections for the four weeks ending July 26 as compared with the corresponding weeks of 1919 and 1918 are given in the table below.

| | Cars revenue freight loaded | | | Received from connect'ns | | |
|---|---|---|---|---|---|---|
| | 1920 | 1919 | 1918 | 1920 | 1919 | 1918 |
| June 5 | 788,974 | 776,610 | 933,007 | 573,852 | 524,731 | 725,622 |
| June 12 | 878,041 | 807,205 | 974,840 | 647,777 | 563,838 | 728,709 |
| June 19 | 869,142 | 807,907 | 974,840 | 640,594 | 574,895 | 728,709 |
| June 26 | 869,350 | 845,684 | 947,841 | 622,007 | 591,200 | 729,157 |

The car shortage report also continues to show increases. For the week ending June 23 the shortage was 125,458 cars for both the United States and Canada, of which 39,925 were coal cars.

**The decennial celebration** of the establishment of the United States Forest Products Laboratory at Madison, Wis., was held in that city on July 22 and 23, at which time an opportunity was afforded to make a detailed inspection of the laboratory and of the work which it is doing. A program was also presented at which the work of the laboratory was reviewed and conferences held to promote the interests of forestry in this country. The celebration was in the general charge of Howard F. Weiss, former director of the laboratory, while those participating in the program included John Foley, forester, Pennsylvania System; Lieutenant-Colonel W. B. Greeley, forester, United States Forest Service, and Hon. Emanuel L. Phillip, governor of Wisconsin. In reviewing the work of the laboratory during the ten years since its creation, Carlisle P. Winslow, director, estimated that the results secured from the experimental work done to date are saving the industries of the United States $40,000,000 annually. This laboratory is supported jointly by the United States Forest Service and the University of Wisconsin.

# PERSONAL MENTION

## GENERAL

**A. M. Davidson,** assistant division engineer on the Baltimore & Ohio, with headquarters at Cleveland, O., has been promoted to assistant trainmaster on the Portsmouth district of the Ohio division, with headquarters at Portsmouth, O.

**R. E. Weedon,** superintendent of roadway shops on the Southern, with headquarters at Charlotte, N. C., has been transferred to Washington, D. C.

**Harry Polland** has been appointed general fire inspector on the Southern Pacific, with headquarters at San Francisco, Cal., succeeding **Niles Searls,** who has been retired.

## ENGINEERING

**Theodore Speiden, Jr.,** has been appointed division engineer maintenance of way on the Baltimore & Ohio, with headquarters at Philadelphia, Pa.

**C. N. Campbell** has been appointed assistant valuation engineer of the Southern Pacific, Texas and Louisiana Lines, with headquarters at Houston, Tex.

**T. S. Bond,** assistant engineer of the International & Great Northern, with headquarters at Palestine, Tex., has been appointed assistant chief engineer, with the same headquarters.

**E. E. Mayo** has been appointed assistant division engineer of the Salt Lake division of the Southern Pacific, with headquarters at Ogden, Utah, succeeding **W. F. Turner,** promoted.

**R. T. Davis,** assistant engineer on the Erie, has been promoted to division engineer, with headquarters at Huntington, Ind., succeeding **J. R. Sexton,** promoted to regional engineer.

**M. Hirschthal** has been appointed concrete engineer on the Delaware, Lackawanna & Western, with headquarters at Hoboken, N. J., succeeding **A. B. Cohen,** whose resignation was noted in the July issue.

**T. S. Boswell,** superintendent on the Southern with headquarters at Asheville, N. C., has been appointed assistant to chief engineer maintenance of way and structures, Lines East, with headquarters at Charlotte, N. C.

**Francis J. Meyer,** roadmaster on the New York, Ontario & Western, with headquarters at Walton, N. Y., has been promoted to assistant engineer, with headquarters at Middletown, N. Y., succeeding **R. W. Canfield,** who has resigned to enter other business.

**Victor K. Hendricks,** assistant regional engineer of the Southwestern region, with headquarters at St. Louis, Mo., has been promoted to regional engineer, succeeding **Horace Stringfellow,** transferred to Washington as regional engineer of the Southern and Pocahontas regions.

**Huntington Smith,** division engineer on the New York, Chicago & St. Louis, with headquarters at Cleveland, O., has been promoted to office engineer, with the same headquarters, succeeding **J. W. Wilkinson,** deceased. **C. R. Wright,** division engineer, with headquarters at Conneaut, Ohio, succeeds Mr. Smith.

**P. W. Elmore** has been appointed assistant division engineer on the Baltimore & Ohio, Western Lines, with headquarters at Dayton, Ohio, succeeding **C. R. Adsit,** who has been transferred to Cleveland, Ohio, succeeding **A. M. Davidson,** promoted to assistant trainmaster. **J. W. Purdy** has been appointed division engineer, with headquarters at Chillicothe, Ohio, in place of **S. H. Pulliam,** resigned.

**W. A. Murray,** division engineer on the New York Central, Lines East, with headquarters at Albany, N. Y., has been promoted to engineer of track with headquarters at New York, succeeding **J. V. Neubert,** promoted to engineer maintenance of way, as noted in the July issue; **G. N. Edmondson,** division engineer of the Pennsylvania division at Jersey Shore, Pa., has been transferred to Albany, N. Y., succeeding Mr. Murray; **S. E. Armstrong,** division engineer of the Ontario division at Oswego, N. Y., has been transferred to Jersey Shore succeeding Mr. Edmonson; **N. W. McCallum,** electrical supervisor bridges and buildings at New York, has been promoted to division engineer at Oswego, succeeding Mr. Armstrong.

**B. S. Voorhees,** district engineer of the Eastern district, the New York Central, has been promoted to the position of general office engineer on the staff of **George A. Harwood,** assistant to the president of the New York Central Lines. Mr. Voorhees has been succeeded by **C. L. Spaulding,** effective July 1. This district has been extended to include the electric zone, exclusive of the Grand Central Terminal.

**W. F. Turner,** who has been promoted to division engineer of the Tucson division of the Southern Pacific, with headquarters at Tucson, Ariz., as noted in last month's issue, was born at New Orleans, La., on June 23, 1884. He graduated from Princeton University in 1906 and entered railway service with the Southern Pacific as a rodman on the Coast division on July 1, 1906. From October, 1906, until November, 1908, he served as draftsman on the same division, being promoted on the latter date to assistant engineer, which position he held until November, 1910, when he was promoted to assistant division engineer of the Stockton division. In September, 1913, Mr. Turner was transferred to the Salt Lake division in the same capacity and he was promoted to division engineer in July, 1918. From September, 1919, until June, 1920, he served as assistant division engineer of the Salt Lake division, being promoted on the latter date, as noted above.

**N. W. McCallum,** whose promotion to division engineer of the New York Central with headquarters at Oswego, N. Y., is noted elsewhere in these columns, was born at Renovo, Pa., on November 8, 1878. Mr. McCallum was graduated from the Pennsylvania State College in 1899 and entered railroad service in the same year as a rodman in the engineering department of the New York Central at Albany, N. Y. On January 1, 1900, he was promoted to inspector of bridges at Utica, N. Y., remaining in this position until March 1, 1903, when he was promoted to assistant supervisor of bridges with the same headquarters. On February 1, 1904, he was promoted to assistant engineer at Albany, N. Y., where he remained for one year when he was appointed supervisor of bridges at Utica, N. Y. In 1907 he was appointed electrical supervisor of bridges and buildings with headquarters at New York, remaining in this position until his recent promotion to division engineer.

**S. B. Ginn,** principal assistant engineer of the railroad department of the Brier Hill Steel Company, has been appointed office engineer for the Ohio region of the Erie, with headquarters at Youngstown, Ohio. Mr. Ginn was born November 17, 1883, at Marysville, Ohio, and received his education at Ohio Northern University, graduating in 1906. He entered railway service with the Pennsylvania in May, 1906, as a rodman, leaving in 1907 to take a position with the Cleveland, Cincinnati, Chicago & St. Louis as a draftsman in the office of the chief engineer and being later promoted to assistant engineer. He entered the employ of the Erie in 1908 as assistant division engineer, being promoted in 1910 to assistant engineer to the engineer maintenance of way and later to the general manager, Lines West. In 1917 Mr. Ginn became connected with the Brier Hill Steel Company as principal assistant engineer in charge of construction work in the railroad department, which position he held at the time of his recent appointment.

**W. A. Murray,** whose promotion to engineer of track of the New York Central is noted elsewhere in these columns, was born at Montville, Maine, on June 5, 1876. He was graduated from the University of Maine in 1899 and entered railway service in June, 1900, in the maintenance of way department of the New York Central at Buffalo, N. Y. With the exception of two years with the supervisor of bridges at Rochester, N. Y., he remained at this point, acting in various capacities, until December, 1905, when he was transferred to Albany, N. Y., as assistant engineer and again in May, 1906, to the office of the engineer maintenance

of way at New York City. In November, 1907, he was appointed supervisor of track with headquarters at Richland, N. Y., being transferred later to Canandaigua. In April, 1909, he was promoted to division engineer with headquarters at Rochester, N. Y., serving subsequently at Jersey Shore, Pa., and Albany, N. Y., until his recent promotion to engineer of track.

**S. R. Young,** whose appointment as assistant chief engineer of the Atlanta & West Point, with headquarters at Atlanta, Ga., was noted in the *Railway Maintenance Engineer* for April, page 167, was born at Coatesville, Pa., on March 3, 1887. He graduated from Lehigh University in 1909, and in May, 1910, entered railway service on the Sunbury division of the Pennsylvania railroad, having previously served as axeman, rodman and transitman with the Consolidation Coal Company of Van Lear, Ky. From 1915 to May, 1916, Mr. Young served as engineer of construction with the Midvale Steel & Ordnance Company at Coatesville, Pa. From May, 1916, to November, 1918, he served in turn as assistant engineer and division engineer on the Atlanta & West Point, the Western Railway of Alabama, and the Georgia Railroad. In November, 1918, he was appointed district engineer of these roads. From December, 1919, to March, 1920, when he was promoted to his present position, he was district engineer in charge of the engineering and roadway departments of the Georgia Railroad, at Augusta, Ga.

**Chester T. Dike,** assistant general manager of the Lines West of the Missouri river of the Chicago & North Western, who was promoted to engineer of maintenance of way of that road with headquarters at Chicago, as noted in last month's issue, was born at Woodstock, Ill., on August 13, 1871, and was educated at Cornell College, Iowa, from which he graduated in 1893. He entered railway service as a rodman in the engineering department of the Northern Pacific in March, 1890, and was employed there during vacations while attending college and for one year after graduation. In 1894 he was appointed city engineer of Mason City, Ia., and two years later became chief engineer of the Mason City & Clear Lake. He was appointed chief engineer of the Iowa, Minnesota & North Western in 1898, and in 1899 became resident engineer on location and construction work for the Chicago & North Western. In 1907 he was appointed superintendent of the Pierre, Rapid City & North Western, a subsidiary of the North Western, and one year later he was appointed engineer and superintendent of construction on the North Western. He was promoted to general superintendent of the Minnesota and Dakota divisions in 1910, and in 1918 was appointed assistant general superintendent of the lines in Iowa. In 1916 Mr. Dike was promoted to assistant general manager of the lines west of the Missouri river, which position he held at the time of his recent promotion.

Chester T. Dike

**John Lansdale,** who has been appointed valuation engineer of Morgan's Louisiana & Texas Railroad & Steamship Company and Southern Pacific lines in Texas and Louisiana, as noted in last month's issue, was born at Triadelphia, Md., on June 24, 1882. He entered railway service with the Tonopah & Goldfield in May, 1906, with which he was employed on location, construction and maintenance work until January, 1910. From February, 1910, to July, 1912, he served as assistant engineer on the Southern Pacific, and from the latter date to March, 1913, as assistant engineer on the San Pedro, Los Angeles & Salt Lake. Mr. Lansdale was employed as assistant engineer in charge of valuation of the Pacific Electric and other electric lines of the Southern Pacific in California from March, 1913, to December, 1919, with the exception of about two years spent in military service as a captain and major of engineers in charge of various railway projects and also assistant chief and chief of the railroad and dock construction section of the Division of Construction and Forestry. From December, 1919, until his recent appointment, he was employed on the Southern Pacific Lines in Texas and Louisiana.

**Frank D. Nash,** chief engineer for the receiver of the Missouri & North Arkansas, has been appointed assistant valuation engineer of the St. Louis-San Francisco, with headquarters at St. Louis, Mo. Mr. Nash graduated from the Louisiana State University in the class of 1896 and entered railway service in the same year as an instrument man on the St. Louis, Peoria & Northern, now forming portions of the Illinois Central and the Chicago & Alton. In June, 1899, he was appointed assistant resident engineer on the Minnesota & St. Louis and in February, 1900, was appointed resident engineer on the Burlington, Cedar Rapids & Northern, now a part of the Rock Island. From December, 1900, to September, 1905, he served on the Chicago, Burlington & Quincy as assistant engineer on location, construction and maintenance work, upon the latter date becoming locating engineer for the Paul's Valley. In 1906 he was appointed engineer for the Philippine railways and from 1907 until 1908 served as locating engineer for the Pan American in Uruguay, South America. In July, 1914, he became a draftsman on the Chicago & North Western and from April, 1915, to June, 1916, served in this capacity on the Chicago, Rock Island & Pacific. He was promoted to pilot engineer in August, 1916, leaving this road in October of the same year to go with the St. Louis-San Francisco in the same capacity. He enlisted in the United States Army in July, 1917, and when discharged in January, 1919, was appointed chief engineer for the receiver of the Missouri & North Arkansas, which position he held at the time of his recent appointment.

Frank D. Nash

**H. N. Rodenbaugh,** who was principal assistant engineer, valuation department of the Southern Railway, prior to Government control, and regional engineer of the Southern and Pocohantas regions during federal control, has been appointed chief engineer of the Florida East Coast, with headquarters at St. Augustine, Fla., succeeding **E. Ben Carter,** who has resigned. Mr. Rodenbaugh was born at Norristown, Pa., on November 20, 1879, and was graduated from the University of Pennsylvania in 1901. He entered railway service in January, 1902, as a draftsman in the office of the chief engineer of the Norfolk & Western, leaving that company in July, 1903, to go with the Alan Wood, Iron & Steel Co., Conshohocken, Pa., as yard superintendent. In June, 1904, he returned to railway service as an assistant engineer in the office of the chief engineer maintenance of way and structures of the Southern, with headquarters at Washington, D. C., leaving the Southern in October, 1905, to become assistant engineer of bridges and buildings on the Carolina, Clinchfield & Ohio at Bristol, Va. In June, 1906, he was appointed principal assistant engineer of the Virginia & Southwestern, leaving this position in January, 1908, to become structural engineer of the Philadelphia & Reading, with headquarters at Philadelphia, Pa. In June, 1909, he returned to the Southern as an assistant engineer of bridges,

serving subsequently as an engineer in charge of terminal construction, supervising engineer, principal assistant to special engineer for valuations and principal assistant engineer, valuation department, until July, 1918, when he was appointed engineering assistant to the regional director of the Southern region of the Railroad Administration. In March, 1920, he was promoted to regional engineer of the Southern and Pocohantas regions, serving in this capacity until his recent appointment as noted above.

## TRACK

**Edward Dinan** has been appointed supervisor of track on the Lehigh Valley, with headquarters at Easton, Pa., succeeding **J. H. Loughnan.**

**John A. Bryan** has been promoted to assistant roadmaster on the Montana division of the Northern Pacific with territory east of Oneida, Mont., and headquarters at Livingston, Mont.

**C. Y. Neadon,** roadmaster of the Coos Bay district on the Southern Pacific, has been transferred to the Hillsboro district, succeeding **E. E. Mayo,** promoted, as noted elsewhere. **G. W. Hendren** has been appointed roadmaster of the Coos Bay district, in place of Mr. Neadon.

**B. Violett,** roadmaster on the Chicago, Burlington & Quincy, with headquarters at Beardstown, Ill., has been appointed general roadmaster of the Ft. Worth & Denver City, with headquarters at Ft. Worth, Tex.

**L. Hebert,** roadmaster on the Canadian Pacific, with headquarters at Chapleau, Ont., has been transferred to the Newport and Orford sub-divisions, with headquarters at Farnham, Que., in place of **C. Francis,** transferred.

**Rueben Armstrong** has been appointed supervisor of track on the New York, New Haven & Hartford with headquarters at Framingham, Mass., succeeding **Calvin Armstrong,** transferred to Putnam, Conn., to succeed **George Blyth,** who has resigned.

**I. D. Talmadge,** assistant roadmaster on the New York, Ontario & Western with headquarters at Middletown, N. Y., has been appointed acting roadmaster with headquarters at Walton, N. Y., succeeding **F. J. Meyer,** promoted, as noted elsewhere.

**J. Spargus,** section foreman on the Chicago, Burlington & Quincy, has been made assistant roadmaster on the Creston division, with headquarters at Villisca, Ia. **E. J. Brown,** clerk in the superintendent's office, Chicago division, has been made assistant roadmaster at Chicago, succeeding **J. J. Burns.**

**James Long** has been appointed track supervisor on the Baltimore & Ohio, Western Lines, with headquarters at Washington C. H., Ohio, succeeding **P. Clark,** who has been granted leave of absence. **C. D. McCarthy** has been appointed supervisor, with headquarters at Washington C. H., Ohio, in place of **M. H. Beard,** promoted as noted in last month's issue.

**B. W. Straw,** supervisor of track on the Baltimore & Ohio, with headquarters at Gassoway, W. Va., has been transferred to Brunswick, Md., succeeding **S. L. Lichliter,** transferred. **D. S. Westfall** has been promoted to supervisor of track, with headquarters at Gassoway, succeeding Mr. Straw. **W. D. Lucas** has been promoted to supervisor of track, with headquarters at Bridgeport, Ohio, in place of **J. T. Cherry,** resigned.

**J. Lukoskie,** division roadmaster of the Terminals division of the Great Northern, with headquarters at Minneapolis, Minn., has been appointed roadmaster of that district of the Terminals division extending from St.. Paul to Fridley, succeeding **R. Worley,** assigned to other duties, and **John O' Leary,** general roadmaster, with headquarters at St. Paul, has been appointed to succeed Mr. Lukoskie. **George G. Smart,** division roadmaster of the Cascade division, with headquarters at Everett, Wash., has been promoted to general roadmaster of the lines from Williston, N. D., east, succeeding Mr. O'Leary. **T. Riley,** division roadmaster of the Montana division, with headquarters at Wolf Point, Mont., has been transferred to the Cascade division, with headquarters at Everett, Wash., succeeding Mr. Smart, and **A. Mitguard,** roadmaster with headquarters at Williston, N. D., has been promoted to division roadmaster, in place of Mr. Riley.

**C. T. Vance,** roadmaster on the Transylvania division of the Southern with headquarters at Brevard, N. C., has been transferred to Asheville, N. C., the position of roadmaster on the Translyvania division having been abolished. **W. C. Dobyns,** supervisor of track with headquarters at Waynesville, N. C., has been transferred to Clinton, Tenn., succeeding **W. C. Kidwell,** assigned to other duties.

**George G. Smart,** who has been promoted to general roadmaster on the Great Northern, with headquarters at St. Paul, Minn., as noted elsewhere, was born at Birmingham, England, on March 18, 1879. He entered railway service in 1897 with the Oregon-Washington Railroad & Navigation Company as water boy and laborer. From 1898 to 1900, he served as section foreman, leaving this road in the latter year to go with the Great Northern as section foreman and extra gang foreman. He was promoted to district roadmaster at Everett, Wash., in 1906, remaining there until 1909, when he was promoted to division roadmaster, serving in this capacity at Spokane, Wash., Havre, Mont., and Everett, Wash., until his recent promotion to general roadmaster.

**William Pelham** has been appointed maintenance of way inspector in the Ohio region of the Erie, with headquarters at Youngstown, Ohio. Mr .Pelham was born at Susquehanna, Pa., on March 2, 1880, and entered railway service in the bridge and building department of the New York, Lake Erie & Western, in May, 1896. In March, 1903, he entered the employ of the Erie as assistant carpenter foreman, which position he held until July, 1906, when he was promoted to foreman. From November, 1909, until March, 1915, he served as master carpenter, being promoted at the latter date to maintenance of way inspector on the Lines West. He left this road on September 15, 1917, to go with the Brier Hill Steel Company, Youngstown, Ohio, on special railroad relocation work essential to the United States Shipping Board, serving in the capacity of superintendent of construction, which position he held at the time of his appointment as noted above.

**O. F. Carnahan,** section foreman on the Toledo, St. Louis & Western, has been promoted to roadmaster on a newly created subdivision, with headquarters at Ramsey, Ill. Mr. Carnahan entered railway service with the Toledo, St. Louis & Western on July 8, 1897, as a section laborer, remaining with the road until December of the same year when he entered the employ of the Illinois Central in the same capacity. .He returned to the Toledo, St. Louis & Western on April 1, 1899, as a section laborer, being appointed section foreman on August 1, 1900, and later extra gang foreman and tie inspector. During 1918 Mr. Carnahan was in charge of a steam shovel and ditcher for this road, returning to the position of section foreman on November 20, 1918, in which capacity he served until his recent promotion.

**Charles M. Chumley,** who has been promoted to roadmaster of the Mississippi division of the Illinois Central, with headquarters at Water Valley, Miss., as noted in last month's issue, was born at Union City, Tenn., on May 21, 1882. He entered railway service on March 16, 1903, as a bridge carpenter with the Yazoo & Mississippi Valley, later being promoted to assistant bridge foreman on the New Orleans division. From March, 1905 to September, 1906, he served as storekeeper and clerk to the supervisor of bridges and buildings, with headquarters at Harriston, Miss. He was promoted to district bridge foreman in September, 1906, which position he held until September, 1907, when he was promoted to general foreman in charge of bridge and incline construction. In February, 1909, he was promoted to district bridge foreman, and in December, 1909, was promoted to supervisor of bridges and buildings of the Memphis division, with headquarters at Memphis, Tenn., which position he held until his promotion as noted above.

**Frank A. Sparks,** who has been appointed supervisor on the Hocking Valley, with headquarters at Walbridge, Ohio, as noted in last month's issue, was born at Williamsfield, Ohio, on June 2, 1869. Mr. Sparks entered railway service in 1891 as a section laborer on the Lake Shore & Michigan Southern, now the New York Central, Western Lines, and was promoted to extra gang foreman on the Low Grade division in 1901. In 1906, he was transferred to Ashtabula harbor in charge of slag filling and track building on new lake front work, and in 1909 was transferred to the Chicago division on stone ballast work. In 1910 he was appointed assistant roadmaster on the Norwalk division; in 1913 he was transferred to the Air Line division in charge of building a large yard at Air Line Junction, and in 1914 was transferred back to the Norwalk division. He left the employ of the New York Central in 1918 to go with the A. S. Hecker Company, railroad contractors, as superintendent, on work for the Hocking Valley. On January 1, 1920, Mr. Sparks was appointed construction supervisor of the Hocking Valley, which position he held at the time of his recent appointment.

**G. L. Dail** has been promoted to roadmaster on the Atlantic Coast Line with headquarters at Rocky Mount, N. C., and in charge of the Rocky Mount terminal, the main line between that point and Contentnea, N. C., and the Nashville branch. The appointment of Mr. Dail was accompanied by some re-arrangement of territories and transfers, whereby **C. B. Reddich,** roadmaster at Rocky Mount was relieved of the Nashville branch. **E. F. Anderson,** roadmaster at Rocky Mount was transferred to Selma, N. C. in charge of the main line between Contentnea and Fayetteville, N. C., and the Midland branch, **R. R. Dempsey,** roadmaster at Goldsboro, N. C., being relieved of the latter territory. **S. M. Beasely,** roadmaster at Fayetteville, N. C., was relieved of the main line between that point and Dunn and given charge of the Atlantic & Yadkin from the Atlantic & Yadkin junction to Sanford, N. C., **W. A. Andrew,** roadmaster at Fayetteville being relieved of the Atlantic & Yadkin between Fayetteville and Sanford. The territory of **B. E. Haley,** general roadmaster with headquarters at Rocky Mount has been extended to cover the Atlantic & Yadkin between Fayetteville and Sanford, **W. Q. Jeffords,** general roadmaster at Florence S. C., being relieved of that portion of the Atlantic & Yadkin.

## BRIDGE

**L. A. Cowsert,** supervisor of water supply on the Southern, with headquarters at Danville, Ky., has resigned to engage in other business.

**C. F. Ferguson** has been appointed division bridge inspector on the Pacific system of the Southern Pacific, with headquarters at Dunsmuir, Cal., succeeding **J. G. Wiley,** assigned to other duties.

**H. C. Swartz,** master of bridges and buildings on the Grand Trunk with headquarters at St. Thomas, Ont., has been promoted to superintendent of bridges and buildings with headquarters at Montreal, Que., succeeding **J. H. Johnson. W. H. Tool,** supervisor of bridges and buildings, with headquarters at Allandale, Ont., has been promoted to master of bridges and buildings succeeding Mr. Swartz. **E. Neville** has been promoted to supervisor of bridges and buildings succeeding Mr. Tool. **G. Sanders** has been appointed supervisor of bridges and buildings at Battle Creek, Mich.; **C. C. Jones** at Detroit, Mich., and **W. Graham** at Brantford, Ont.

## OBITUARY

**A. M. Williams,** supervisor on the Pennsylvania, with headquarters at Columbia, Pa., died suddenly on June 30.

**Gabriel Williamson Harrison,** ballast engineer on the Seaboard Air Line, died at Rex Hospital, Raleigh, N. C., on July 18, 1920. Mr. Harrison was born at Elk Hill, Va., on January 24, 1858, and received his education at William and Mary College. He entered the employ of the Seaboard Air Line in 1894 and has been in continuous service since that time, having served for several years in the maintenance department before being appointed ballast engineer.

# CONSTRUCTION NEWS

**The Canadian National** has awarded a contract for the construction of the Acadia Valley branch to John Timothy of Winnipeg, and for the Turtleford Southeastern line to the Western Construction Company, North Battleford, Sask. Work on the Maryland extension of this road has been suspended, pending investigations of a change in the route. Negotiations for the contract of the Prince Albert Northeasterly line are under way.

**The Chicago, Milwaukee & St. Paul** has filed an application with the Interstate Commerce Commission for a certificate of public convenience and necessity for the extension of a branch line from Blackfoot Junction, Mont., to Clearwater Junction, a distance of about 21 miles along the bank of the Big Blackfoot river in a general easterly and northeasterly direction upon a right of way heretofore acquired and a grade heretofore constructed.

**The Edinburg, Falfurrias & Gulf** has been granted a charter by the Railway Commission of Texas to build a 70-mile line from Beeville, Tex., to Edinburg. The right of way from Edinburg, Tex., to Falfurrias, 60 miles, has been secured, but it is not known how soon construction will be started.

**The Missouri, Kansas & Texas** has awarded a contract to the List & Gifford Construction Company, Kansas City, Mo., for rearranging and extending its yards at Osage, Okla. The work includes about 70,000 cu. yd. of grading, the construction of about five miles of track, a concrete trestle under the main track and six additional tracks and some minor culvert work. The improvements also include installing a new 75-ton track scale, which will be carried out by company forces.

**The St. Louis-SanFrancisco** has awarded a contract for the construction of a six-mile cutoff near Lebanon, Mo., to Scott & White, St. Louis, Mo.

The Frisco has also awarded contracts for extensions to roundhouses at Afton, Okla., and Oklahoma City to the Globe Construction Company for $39,000 and $57,000, respectively; at Newburg, Mo., to C. E. Hamilton for $39,000; and at Monett, Mo., and Amory, Miss., to the Jarrett Construction Company for $39,000 and $44,000, respectively. Another contract has been let to the Ogle Construction Company of Chicago for the erection of a 200-ton frame coaling station at Monett, Mo., for $20,000. Work has started on the first four projects named.

**The Union Pacific** has awarded a contract to the Utah Construction Company of Ogden, Utah, for the grading in connection with second track construction, from Le Roy, Wyo, to Wahsatch, Utah, about 35 miles. All culvert and bridge work will be handled by the railroad forces.

## IRON AND STEEL

**The Chicago & North Western** has contracted for 124 tons of steel towers for water tanks to be erected at Chicago by the Chicago Bridge & Iron Works.

**The Los Angeles & Salt Lake** has given a contract for the fabrication of 132 tons of steel for a machine shop to be constructed at Provo, Utah, to the Omaha Steel Works, Omaha, Neb.

**George H. Carey,** 1 Broadway, New York, is inquiring for 400 tons of 20-lb. relaying rail, for export to China, also for 100 ton of 60-lb. relaying rail for export to Cuba, and for 1,200 tons of 50-lb. relaying rail.

**The Oregon-Washington** has placed a contract for a drawbridge across the St. Joe River, near Chatcolet, Idaho, with the American Bridge Company. The contract calls for 300 tons of structural steel.

**The Sorocabana Railway** (Brazil) is inquiring for 4,000 tons of 75-lb. rail and accessories. There will be 110,000 lineal meters of rail, in 10-meters lengths; also 21,100 splice bars, 48,000 nuts, 380,000 spikes and 18 switches.

# SUPPLY TRADE NEWS

## GENERAL

**The Oxweld Acetylene Company,** Newark, N. J., has been given a distinguished service award by the War Department of the United States for distinguished service in the war.

**The Worthington Pump & Machinery Corporation,** New York, has purchased from the Platt Iron Works, Dayton, Ohio, all of the drawings, patterns, jigs, templates, special tools, good-will and name, on its various lines of products.

**"Blawnox"** is the new name conferred upon the town of Hoboken, Pa., the home of the Blaw-Knox Company, following the granting of a petition signed by the people of the town asking the postoffice name to be changed to Blawnox.

**The Refinite Company,** Omaha, Neb., manufacturers of the Refinite water softener and the Refinite rapid pressure filter, has just acquired by purchase the entire capital stock, ownership and control of the **L. M. Booth Company,** Jersey City, N. J., manufacturers of the Booth lime-soda water softener.

**The Air Reduction Sales Company,** New York City, has just completed the construction of a new acetylene plant at Gloucester, N. J., including a gas house, carbide storage building, and a generator house. All of these buildings are of fabricated steel supported on concrete foundations with concrete floors.

**The American Iron & Steel Corp.,** with executive offices at Cleveland, has been chartered recently in the state of Delaware and is sponsored by interests identified with the steel industry in the Cleveland, Pittsburgh and Michigan districts. The new concern will build a steel plant on a site with about two miles of Lake Michigan frontage just west of Michigan City, Ind., at a cost ranging between $5.-000,000 and $10,000,000.

**Westinghouse, Church, Kerr & Co., Inc.,** and **Dwight P. Robinson & Co., Inc.,** have consolidated under the name of **Dwight P. Robinson & Company, Incorporated,** engineers and constructors, with general offices at 125 East Forty-sixth street. The officers are: **Dwight P. Robinson,** president; **T. N. Gilmore,** first vice-president; **I. W. McConnell,** vice-president; **A. K. Wood,** vice-president and treasurer; **R. M. Henderson,** vice-president; **L. H. Bean,** vice-president; **H. H. Kerr,** vice-president, Chicago office; and **W. L. Murray,** secretary. The directors include the first four officers named above and **Paul D. Cravath,** of Cravath & Henderson, attorneys; **Homer Loring,** of Loring & Co., Boston; **John P. McGinley,** chairman, Chicago Pneumatic Tool Company; **Harry T. Peters,** president, the Fairbanks Company, and **Edward R. Tinker,** vice-president, Chase National Bank.

**J. H. Williams & Co.,** manufacturers of drop-forgings and drop-forged tools at Brooklyn and Buffalo, N. Y., and the **Whitman & Barnes Manufacturing Company,** makers of twist drills, reamers, wrenches and drop-forgings at Akron, Ohio, Chicago and St. Catherines, Ont., have entered into an agreement, subject to approval of the stockholders, for the merging of the Chicago and St. Catherines, Ont., plants of the Whitman & Barnes Manufacturing Company with J. H. Williams & Co. The Whitman & Barnes Manufacturing Company retains its twist drill and reamer business and will continue the manufacture of these tools at Akron as an entirely separate organization. The business will continue to be operated by those who have been identified heretofore with the business of J. H. Williams & Co. and with the Chicago and St. Catharines plants of the Whitman & Barnes Manufacturing Company, the organization being as follows: **J. Harvey Williams,** president and managing director; **A. D. Armitage,** vice-president; **W. A. Watson,** secretary and treasurer; **R. S. Baldwin,** controller. **F. W. Trabold,** general sales manager; **A. S. Maxwell,** eastern district sales manager; **W. E. Rowell,** western district sales manager; **J. C. Cotter,** Buffalo district sales manager; **A. M. Thompson,** Detroit district sales agent; **Hugh Aikman,** publicity manager; **Capt. W. N. McMunn,** general works manager; **Willard Doud,** chief engineer; **R. J. Smith,** superintendent, Brooklyn division; **T. F. DuPuy,** superintendent, Buffalo division; **Barney Nelson,** superintendent, Chicago division; **J. C. Scanlon,** general purchasing agent; **J. B. Payne,** general traffic manager, and **W. J. Elliott,** Canadian manager.

**The Protexol Corporation,** 34 Barclay street, New York, has bought all the assets and property, including franchises, patents, trade-marks and copy-rights of the Carbolineum Wood Preserving Company, and will continue the business under the name Protexol Corporation, successors to the Carbolineum Wood Preserving Co. **Ernest F. Hartman,** president of the Protexol Corporation, has been president of the Carbolineum Wood Preserving Co. since its incorporation. **John N. Schlude,** treasurer of the new corporation, has been secretary and treasurer of the Carbolineum Wood Preserving Company since its incorporation; **Ross M. Whitbeck,** secretary of the new corporation, had been connected with the Carbolineum Company as sales manager for many years. **Fred Jaeger,** manager of the export department, had been in charge of the export department of the Carbolineum Company since 1915. **Edwin F. Paddock,** chemist and engineer, is in charge of the laboratory and manufacturing, and had been with the Carbolineum Company in a like capacity for nine years. The Carbolineum Wood Preserving Company, prior to the war had the exclusive U. S. rights to the trade names Carbolineum and Avenarius Carbolineum, but some time ago discontinued the use of these foreign trade names and adopted for its product the name Protexol wood preservative, a trade name coined by itself and protected by U. S. trademark registration.

## PERSONAL

**Jerome A. Moss** has resigned from the firm of Joseph E. Nelson & Sons, contractors, Chicago, and will engage in general railway contracting, with offices at Chicago.

**J. I. Capps** has been appointed purchasing agent of the American Manganese Steel Company, Chicago, with headquarters at Chicago Heights, Ill., succeeding **S. T. Peebles,** who is now in charge of sales.

**Dewitt Clinton Grove,** vice-president of the Technical Publicity Association, has been appointed advertising manager of the Blaw-Knox Company, Pittsburgh, Pa., succeeding **George Land,** who resigned recently to become head of the Technical Publicity Company, Pittsburgh.

**George Wagstaff,** sales manager for the Onondaga Steel Company, at Syracuse, N. Y., has been appointed district manager of sales in charge of the Chicago territory for the Central Steel Company, Massillon, Ohio, with headquarters in the Peoples Gas Building, Chicago.

**J. Leonard Replogle,** president of the Vanadium Corporation of America, and chairman of the Replogle Steel Corporation, New York, has been elected a director of the Berg & Hutton Steel Corporation in Teschen, Czecho-Slovakia, of which the Schneider Company, Creusot, France, holds the controlling interests.

**M. O. Leighton,** chairman, of the National Public Works Department Association, **Major C. T. Chenery,** secretary of that association and **A. C. Oliphant** of the Washington office of Engineering Council, have formed a co-partnership in the name of **M. O. Leighton Company** with office at 700 Tenth street, Washington, D. C., for the purpose of engaging in general engineering practice and industrial representation before the federal departments. These men will retain their connection with their respective associations, pending the displacement of Engineering Council by the Federated American Engineering Societies.

**Edward C. Waldvogel** has been elected a director of the Yale & Towne Manufacturing Company, Stamford, Conn., and **Willard L. Case** has been elected treasurer, succeeding **John B. Milliken,** resigned. Mr. Waldvogel began work in a retail hardware store and later served in the hardware

jobbing business both as a buyer and a salesman. He subsequently became a traveling salesman for the Yale & Towne Company and was consecutively promoted to a position in the general offices, assistant general manager, and in 1916, general manager. Mr. Case received his education at Peddie Institute and Brown University and subsequently took up the study and practice of industrial engineering. He served as advisory engineer to the Audit Company, New York, and in 1910 he opened offices of his own and was engaged in consulting practice relating to problems of construction, operation, management and finance in connection with manufacturing plants, and more recently he was a special member of a firm of certified public accountants.

**Allan E. Goodhue,** who has been managing director of the Chicago Pneumatic Tool Company's English subsidiary, the Consolidated Pneumatic Tool Company, London, England, since May 1, 1919, and also director of European sales for the Chicago Pneumatic Tool Company, New York, has been elected vice-president in charge of sales of the latter company, with headquarters at New York. Mr. Goodhue was formerly connected with the sales department of the Midvale Steel Company for a number of years, and the Midvale Steel and Ordnance Company in Philadelphia, Chicago and Boston, and left that company in March, 1918, to enter the service of the United States Government, where he was assistant manager of the Steel and Raw Material section, Production division of the Emergency Fleet Corporation, until January, 1919, when he became connected with the Chicago Pneumatic Tool Company.

**Allan E. Goodhue**

## TRADE PUBLICATIONS

**Dump Cars.**—The Western Wheeled Scraper Company, Aurora, Ill., has issued a large well illustrated catalog (No. 51) of its dump cars, spreaders and other construction equipment. The book describes the various types and sizes of cars, gives detailed specifications of their construction and shows many illustrations of them in use.

**Aeroil Kerosene Burners.**—An eight-page illustrated bulletin known as No. 12 has been recently published by the Aeroil Burner Company, Union Hill, N. J., describing the line of Aeroil kerosene burners adapted for the melting of tar, pitch, asphalt, etc. Complete data are given for the various sizes as well as photographs of actual installations.

**Luitwieler Non-Pulsating Pumps.**—The Luitweiler Pumping Engine Company, Rochester, N. Y., has recently issued a series of 12 to 18-page illustrated bulletins describing the various styles of pumps, etc., manufactured by this company. Automatic electric and hydro-pneumatic pressure systems are described in addition to considerable data on sizes, capacities, tests and results.

**Thermit Pipe Welding.**—The Metal & Thermit Corporation, New York, has recently issued a 24-page illustrated booklet on the welding of pipe by the thermit process. The text is descriptive of the methods employed, from the preparation of the ends of the pipe to the pouring of the thermit metal or superheated liquid steel. The photographs illustrate the text and also show results of strength tests.

**Niagara Conoidal Fans.**—The Buffalo Forge Company, Buffalo, N. Y., has recently issued a large size, 52-page illustrated catalog known as No. 421, which is devoted to the line of conoidal fans manufactured by this company. Complete tables are given regarding sizes, capacities and pressures, etc, and are accompanied by illustrations and drawings, showing actual installations.

**Portable Floor Cranes.**—The Canton Foundry & Machine Company, Canton, Ohio, has issued a 34-page catalog illustrating and describing the portable floor cranes and hoists manufactured by that company for use in freight houses, warehouses, shops, etc., for lifting loads up to 6,000 lbs.

**Coaling Stations.**—The Roberts & Schaefer Company, Chicago, has recently issued two folders directing attention to the coaling stations built by that company. One of these illustrates various types of reinforced concrete station structures; the other pictures and describes the hoisting machinery, buckets, tram cars, coaling gates, sand plants and other features which make up the coaling station.

**Spreader Plow.**—The Bucyrus Company, South Milwaukee, Wis., has issued a four-page folder describing the outstanding features of the Bucyrus Class-50 spreader plow. Particular attention is given to the application of this equipment for the building of embankments higher than the track on which the material is unloaded from cars, as described in the *Railway Maintenance Engineer* for July, page 278.

**Single Stage Air Compressors.**—The Pennsylvania Pump & Compressor Co., Easton, Pa., has recently issued a 12-page illustrated bulletin known as No. 100, devoted to the Class 3-A power-driven, single-stage, straight-line air compressors manufactured by this company. The bulletin gives complete data on the capacities of the various types in addition to describing the latest improvements made in this line, consisting of such features as a new type of ring plate valve, solid forged crankshaft, connecting rod with solid box eyes, etc.

**Bearings and Their Lubrication**—The Vacuum Oil Company, New York, has published a 32-page pamphlet which contains a detailed discussion of the lubrication of various forms of bearings. The subject is introduced by illustrating and describing the more common forms of bearings used on various types of machinery. This is followed by a brief description of the usual method of applying the lubrication either directly or through distributing systems. Space is also given to the general discussion of lubrication in relation to the quality of oil; the latter part of the publication is devoted to considerations affecting the selection of the oil.

**Ball Bearing Jacks.**—Bulletin No. 301 recently distributed by the Duff Manufacturing Company presents detailed information regarding Duff high-speed, ball-bearing jacks of 50 and 35 tons capacity.

This company has also issued a 12-page illustrated bulletin (No. 303) describing the line of Duff trip jacks manufactured by this company. This publication includes a complete description of the various styles and sizes of jacks used for constructing, surfacing, ballasting and repairing railroad track.

This company has also prepared a small 16-page folder (No. 803) illustrating and describing briefly Duff and Barrett jacks of the types most widely sold. This booklet is a miniature catalog giving complete information regarding dimensions, capacities and list prices of these jacks.

---

**The National Railway Appliances Association** has sent an announcement to its members over the signature of James B. Strong, president, urging early application for space in the next exhibit, which will be held at the Coliseum and Annex, Chicago, on March 14-17, 1921, in the week of the annual convention of the American Railway Engineering Association and the stated meeting of the Signal Division of the American Railroad Association in that city. Although attendance at the exhibit last March established a new record, reaching a total of 22,612, plans are being made for a still larger attendance next March. The officers are also planning to increase the amount of floor space available for exhibits and to add to the educational value of this display of maintenance of way and signal materials.